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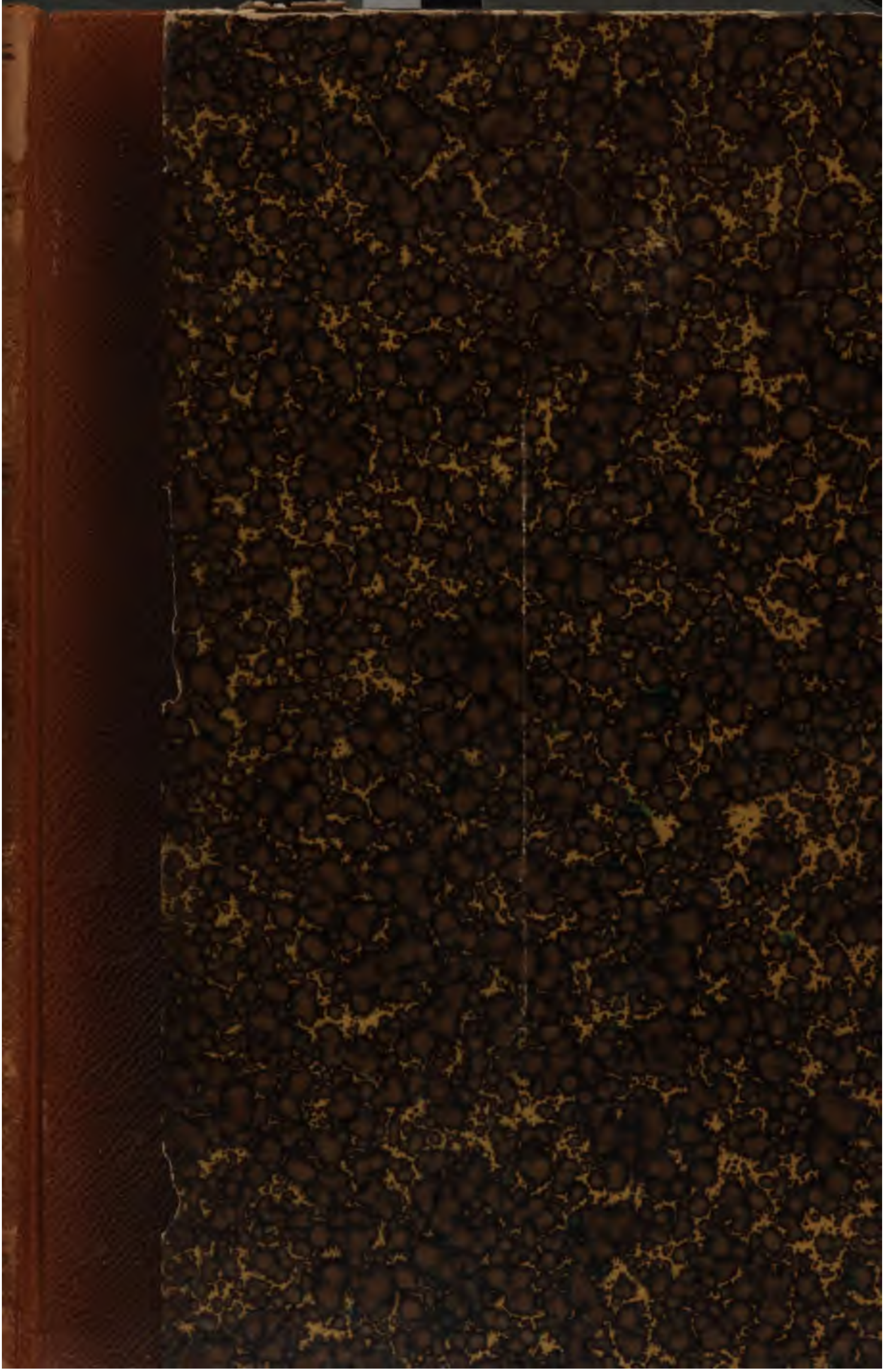

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LIST

OF THE

Coleoptera

OF

Southern California,

WITH

Notes on Habits and Distribution

AND

Descriptions of New Species

BY

H. C. FALL

LIBRARY

Issued November 11, 1901

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LIST OF THE COLEOPTERA OF SOUTHERN CALIFORNIA, WITH NOTES ON HABITS AND DISTRIBUTION AND DESCRIPTIONS OF NEW SPECIES.

BY H. C. FALL.

INTRODUCTION.

THE Coleoptera of California, or of any considerable part thereof, have never been made the subject of exclusive treatment by any of our entomologists. Portions of the State have, it is true, formed a part of much more extensive areas treated in some of the earlier faunal papers of Le Conte, but in none of importance have the Californian species been so numerous as to constitute a majority of those listed. Of these papers, two are especially worthy of mention, viz: The Report on the Insects collected on the Pacific R. R. Survey adjacent to the 47th parallel (1857), and the Catalogue of the Coleoptera of the Region adjacent to the Mexican boundary line (1858). In the former, 1,173 species are listed from Northern California, Oregon, Washington, and Alaska, of which 520 are Californian; in the latter, of about 1,000 species mentioned, 300 are credited to Southern California. To both of these, short supplements were added in 1858 and 1859. In an earlier paper (1851), Le Conte had published descriptions of 335 species from various parts of California, all of which are incorporated in the two lists above mentioned.

December 29, 1900.

Previous to the time of Le Conte our knowledge of the Coleoptera of the Pacific Coast was due entirely to the writings of Eschscholtz (1829) and Mannerheim (1843–1853). Both of these authors confined their attention to the fauna of the northern coast region—more especially of Alaska—and, as is remarked by Le Conte, at the close of Mannerheim's labors, the fauna of that region was more completely developed than that of any other part of the continent.

In 1859 Le Conte published a list of 147 species collected by Xantus at Fort Tejon. The number is insignificant, but the list is interesting in the present connection, since Fort Tejon lies at the southern end of the San Joaquin Valley, on the northern slope of the mountains which separate the valley from Southern California. Of the 147 species named, 120 are now known to occur south of the mountains.

From 1859 to 1876 several papers of a faunal nature were contributed by Le Conte, Horn, and Ulke, none of which, however, are so important as to require special mention. In these, as in the two first named, the references to Californian species are for the most part contained in lists covering a much wider territory. Since 1876 only a few local lists have appeared, the most

It were desirable for many reasons that the scope of the present work be enlarged to cover the fauna of the entire State. I do not, however, at present feel sufficiently familiar with the northern fauna to warrant so great an undertaking. Indeed, I have many times been tempted to indefinitely postpone the present paper, because of the very meager knowledge which we possess of the great majority of even the commoner species of our district. With a view to completeness, however, and in order to increase the usefulness of the present list, I have in the "Notes" added at the end of each genus the names—nearly always with localities, but usually without further comment—of all other species known to have occurred within the State. It is not unlikely that a certain number of these, recorded by the older writers simply from "California," may have been found within the limits of Southern California; but I have very rarely ventured to include a name in the list without definite knowledge of its occurrence within the limits of the territory here treated.

Briefly described, the term Southern California, as here used, includes that part of the State lying to the south and east of a line drawn from Point Conception eastward along the Santa Inez Mountains, then curving to the north and east around the southern end of the San Joaquin Valley, and along the desert slopes of the Sierra Nevada Mountains through Kern and Inyo counties, to the Nevada state line. The region thus defined is by no means a distinct zoological district, but its northern boundary line is as nearly an interfaunal one as it is possible to draw across the State. Its area is approximately one-third that of the entire State, and includes San Diego, Riverside, San Bernardino, Orange, Los Angeles, and Ventura counties; the southern part of Santa Barbara, the eastern part of Kern, and the greater portion of Inyo counties.

To the student who is unacquainted with the topography and climatic conditions of California, the following brief sketch of the natural features, more especially of the region under consideration, will be of service.

The State lies approximately between the parallels of 33° and 42° of latitude, and is crossed by two great mountain systems, lying along and in general parallel with its eastern and western borders. The former—the Sierra Nevada—extends from near the northern border to about the 35th parallel. Its average elevation is from 5,000 to 8,000 feet, but there are occasional ridges of 9,000 and 10,000 feet altitude, and individual peaks that exceed 14,000 feet. The eastern slope descends quite abruptly to the Great Basin, itself 4,000 to 5,000 feet above the sea level; the western slope is much more gradual.

The Coast Range consists, like the Sierra Nevada, of numerous nearly parallel ridges, and extends the entire length of the State. Its general altitude is from 2,000 to 6,000 feet. These two systems are united near Mt. Shasta in the north by a series of cross ranges, and again in the south near the northern boundary of Los Angeles County, thus inclosing the great central valley, Range. The principal chain, extending from the Tejon to the Colorado River, has received various local names, the central and highest portion being known as the San Bernardino Mountains. Taken as a whole, it is for convenience frequently referred to in the following pages as the Southern Sierras.

To the east of these mountains lie the Colorado and Mojave deserts, while to the west the country is broken, especially toward the coast, by numerous short ranges of no great altitude, between which lie fertile valleys.

The climate of Southern California varies much according to locality, but it is in general mild and dry. Along the coast the mean temperatures of January and July differ by but little more than 10°, but toward the interior the difference between summer and winter temperature becomes rapidly more marked. Except in the higher parts of the mountains, the mercury rarely drops below 28° Fahrenheit in winter, but not infrequently rises to or even exceeds 100° in the summer months in the interior valleys. The summers in the desert region of the southeast are excessively hot, a temperature of 130° being at times experienced at Yuma and other points along the lower Colorado River.

In all parts of our territory the year is divided into two well defined seasons, a rainy and a dry. The former usually begins toward the end of October and lasts till April. During this season the fair days greatly outnumber the rainy ones, and the precipitation is on the average less than that during any period of equal length on the Atlantic slope. The average rainfall at Yuma is less than 4 inches; at San Diego 10 inches; at Los Angeles 20 inches, and becomes somewhat greater as we ascend the western slopes of the mountains. Snow falls every winter at altitudes of 3,000 feet and over, but lasts only a short time, except on the highest peaks, where, in sheltered spots on northern slopes, it may be seen in midsummer. At intervals of many years the ground is whitened for a few hours in the valleys.

The locally diverse conditions of temperature and rainfall are of necessity accompanied by a variation in the character and abundance of the vegetation, and consequently of the insect fauna. Only along the crests or upper slopes of the higher ranges—notably of the San Bernardino Mountains—is there anything approaching forest growth. At these altitudes—5,000-8,000 feet—there are considerable areas covered sparsely with pine, cedar, fir, and scattered oaks. Alders line the streams in the mountain cañons, while willows, sycamores and cottonwoods grow along the water courses at lower levels wherever the supply of moisture is sufficiently permanent. Oaks of several species are more or less common throughout the lower foothills, and occur here and there in park-like groves in the valleys. The foothills are everywhere covered with a mixed growth of scrub-oak, Ceanothus, greasewood, manzanita, and a variety of other bushes and low trees, which, in some places, form almost impenetrable thickets. The valleys are green in the rainy season and in early spring are bright with a profusion of wild flowers, but are burned far to the north and east beyond the State line; the other, the more copiously watered country lying between the principal mountain range and the coast. To these two we may add two others of very limited area, but quite as well defined, viz, the timber belt of the higher ranges; and the beaches, salt flats, and sand dunes immediately adjoining the seashore.

While it is true that a large proportion of the species occurring in each of these districts is to be found in none of the others, yet our acquaintance with many parts of the territory here considered is still too imperfect to permit the expression of these facts in figures.

In the preparation of the following list I have carefully searched all the literature at my command, and I believe that omissions of this sort will not be numerous; there doubtless are, however, a considerable number of species in collections, which are not here included, for the simple reason that they have not been recorded. Of such as these, and of omissions or corrections of any kind, I would be very glad to be notified in order that they may be incorporated in any revision or supplement which may appear in the future.

Notwithstanding the inevitable shortcomings incident to any preliminary list—and this can scarcely claim to be more—the number of species here credited to Southern California is larger than that of any other faunal list yet published in North America.* The Southern California list proper contains 2,197 species and 17 varieties, and to these may be added 1,220 species and 4 varieties from other parts of the State, to which reference is made in the notes, making a total of 3,417 species and 21 varieties for the entire State.

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* A catalogue of the insects of New Jersey by John B. Smith has appeared since the above was written and contains the names of 2,845 species of Coleoptera—a number greater than that here recorded for Southern California, but considerably smaller than that here credited to the whole State.

Following the notes on distribution, etc., there will be found descriptions of a considerable number of the new species mentioned in the list. There are still many others left undescribed, chiefly for the reason that their proper definition would require a more extended investigation than is now possible. A few allied species from other parts of the country have also been described.

Finally, it is a pleasure to acknowledge the kind and ready assistance of entomological friends in the preparation of the following pages, more particularly of my fellow Californians, Messrs. Fényes, Daggett, Fuchs, Van Dyke, Rivers and Ricksecker.

To Mr. Fuchs I am especially indebted for a careful examination of the manuscript and the consequent detection of a few errors and the addition of a number of species based upon his own collection.

LIST OF THE COLEOPTERA OF SOUTHERN CALIFORNIA.

CICINDELIDÆ.

- Tetracha carolina *Linn.*
- Cicindela latesignata *Lec.*
  - senilis *Horn.*
  - vulgaris *Say.*
    - var. obliquata *Kirby.*
    - var. vibex *Horn.*
  - 12-guttata *Dej.*
    - var. oregona *Lec.*
    - var. guttifera *Lec.*
  - pusilla *Say.*
- Cicindela hirticollis *Say.*
  - tenuisignata *Lec.*
  - trifasciata var. sigmoidea *Lec.*
  - sperata *Lec.*
  - gabbii *Horn.*
  - lemniscata *Lec.*
  - circumpicta var. prætextata *Lec.*
  - hæmorrhagica *Lec.*
    - var. pacifica *Schaupp.*
  - sommeri *Mann.*

CARABIDÆ.

- Omophron dentatum *Lec.*
- Cychrus obliquus *Lec.*
  - striatus *Lec.*
  - mimus *Horn.*
  - punctatus *Lec.*
  - subtilis *Schaum.*
- Calosoma angulatum *Chev.*
  - prominens *Lec.*
  - peregrinator *Guer.*
  - parviceps *Csy.*
  - triste *Lec.*
  - semilæve *Lec.*
  - simplex *Lec.*
  - cancellatum *Esch.*
  - latipenne *Horn.*
- Loricera californica *Lec.*
- Notiophilus semiopacus *Esch.*
  - obscurus sp. nov.
- Nebria eschscholtzii *Mén.*
- Metrius contractus *Esch.*
- Promecognathus lævissimus *Dej.*
- Scarites subterraneus *Fab.*
- Dyschirius tridentatus *Lec.*
  - patruelis *Lec.*
  - basalis *Lec.*
  - æneus *Dej.*
  - gibbipennis *Lec.*
  - analis *Lec.*
- Dyschirius truncatus *Lec.* (?).
  - marinus *Lec.*
  - aratus *Lec.*
  - unipunctatus sp. nov.
- Clivina dentipes *Dej.*
  - punctulata *Lec.*
- Schizogenius crenulatus *Lec.*
  - depressus *Lec.*
  - seticollis sp. nov.
  - pluripunctatus *Lec.*
- Bembidium nitidum *Kby.*
  - erasum *Lec.*
  - carinatum *Lec.*
  - bifossulatum *Lec.*
  - brevistriatum *Haywd.*
  - longulum *Lec.*
  - recticolle *Lec.*
  - transversale *Dej.*
  - consanguineum *Haywd.*
  - striola *Lec.*
  - platynoides *Haywd.*
  - lucidum *Lec.*
  - californicum *Haywd.*
  - henshawi *Haywd.*
  - scudderi *Haywd.*
  - tigrinum *Lec.*
  - insulatum *Lec.*
  - nubiculosum *Chd.*

Bembidium indistinctum *Dej.*
variegatum *Say.*
intermedium *Kby.*
timidium *Lec.*
versicolor *Lec.*
grandicolle *Lec.*
ephippiger *Lec.*
vile *Lec.*
horni *Haywd.*
bifasciatum *Mots.*
dubitans *Lec.*
acutifrons *Lec.*
cautum *Lec.*
connivens *Lec.*
trechiforme *Lec.*
iridescens *Lec.*
laticeps *Lec.*
Tachys vittiger *Lec.*
mordax *Lec.*
rufotestaceus *Haywd.*
virgo *Lec.*
vorax *Lec.*
corax *Lec.*
edax *Lec.*
nanus *Gyll.*
anthrax *Lec.*
audax *Lec.*
rapax *Lec.*
sellatus *Lec.*
Pogonus planatus *Horn.*
Trechus barbaræ *Horn.*
pomonæ sp. nov.

Pterostichus occidentalis *Dej.*
lustrans *Lec.*
splendidulus *Lec.*
four species undescribed
Amara jacobinæ *Lec.*
scitula *Zimm.*
longula *Zimm.*
insignis *Dej.*
insularis *Horn.*
impuncticollis *Say.*
interstitialis *Dej.*
californica *Dej.*
remotestriata *Dej.*
gibba *Lec.*
aurata *Dej.*
Badister anthracinus *Lec.*
Calathus ruficollis *Dej.*
obscurus *Lec.*
Pristonychus complanatus *Dej.*
Platynus agilis *Lec.*
brunneomarginatus *Mann.*
extensicollis var. simplex *Lec.*
californicus *Dej.*
funebris *Lec.*
frater *Lec.*
maculicollis *Dej.*
variolatus *Lec.*
fossiger *Dej.*
deplanatus *Mén.*
Perigona nigriceps *Dej.*
Lachnophorus elegantulus *Mann.*
Euphorticus occidentalis *Horn.*

- Dromius piceus *Dej.*
- Apristus laticollis *Lec.*
- Blechrus glabratus *Duft.*
  - lucidus *Lec.*
- Axinopalpus biplagiatus *Dej.*
  - fusciceps *Lec.*
- Tecnophilus croceicollis *Mén.*
- Philophuga castanea *Horn.*
- Pinacodera punctigera *Lec.*
- Cymindis cribricollis *Dej.*
- Brachynus lateralis *Dej.*
  - fidelis *Lec.*
  - tschernikhii *Mann.*
  - carinulatus *Mots.*
  - costipennis *Mots.*
- Chlænius ruficauda *Chd.*
  - viridifrons *Esch.*
  - cursor *Chev.*
  - cumatilis *Lec.*
  - leucoscelis *Chev.*
  - obsoletus *Lec.*
  - variabilipes *Esch.*
  - glaucus *Lec.*
  - tricolor *Dej.*
- Chlænius harpalinus *Esch.*
- Oodes elegans *Lec.*
- Agonoderus lineola *Fab.*
  - pallipes *Fab.*
- Discoderus amœnus *Lec.*
- Harpalus sp.
- Stenolophus limbalis *Lec.*
  - anceps *Lec.*
  - cincticollis *Lec.*
  - flavipes *Lec.*
- Bradycellus cognatus *Gyll.*
  - rupestris *Say.*
  - rivalis *Lec.*
  - californicus *Lec.*
- Tachycellus nitidus *Dej.*
  - two new species
- Anisodactylus dilatatus *Dej.*
  - piceus *Mén.*
  - semipunctatus *Lec.*
  - consobrinus *Lec.*
  - californicus *Dej.*
  - amaroides *Lec.*
- Anisotarsus flebilis *Lec.*

AMPHIZOIDÆ.

Amphizoa insolens *Lec.*

HALIPLIDÆ.

- Haliplus concolor *Lec.*
- Cnemidotus callosus *Lec.*
- Cnemidotus simplex *Lec.*

DYTISCIDÆ.

- Laccophilus decipiens *Lec.*
  - terminalis *Sharp.*
  - mexicanus *Aubé.*
  - 4-lineatus *Horn.*
- Hydrovatus brevipes *Sharp.*
- Desmopachria latissima *Lec.*
- Bidessus cinctellus *Lec.*
  - pictodes *Sharp.*
  - affinis *Say.*
  - subtilis *Lec.*
  - amandus *Lec.*
- Hygrotus hydropicus *Lec.*
- Cœlambus medialis *Lec.*
  - pedalis sp nov.
  - fraternus *Lec.*
- Deronectes griseostriatus *De G.*
  - striatellus *Lec.*
- Hydroporus addendus *Cr.*
  - subpubescens *Lec.*
  - fortis *Lec.*
  - axillaris *Lec.*
  - vilis *Lec.*

Hydroporus latebrosus *Lec.*
Coptotomus interrogatus *Fab.*
Hydrotrupes palpalis *Sharp.*
Ilybiosoma regularis *Lec.*
Agabinus glabrellus *Mots.*
Agabus lugens *Lec.*
  lineellus *Lec.*
  morosus *Lec.*
  obsoletus *Lec.*
  lecontei *Cr.*
Rhantus binotatus *Harr.*
  anisonychus *Cr.*
Corymbites strigatus *Lec.*
Eretes sticticus *Linn.*
Dytiscus marginicollis *Lec.*
Thermonectes basilaris var. intermedius *Cr.*
  marmoratus *Hope.*
Cybister ellipticus *Lec.*
  explanatus *Lec.*

GYRINIDÆ.

Gyrinus plicifer *Lec.*
  consobrinus *Lec.*
Gyretes sinuatus *Lec.*

HYDROPHILIDÆ.

Helophorus obscurus *Lec.*
Hydrochus variolatus *Lec.*
  vagus *Lec.*
  sp. nov.
Ochthebius rectus *Lec.*
  costipennis sp. nov.
  puncticollis *Lec.*
  discretus *Lec.*
  nitidus *Lec.*
  interruptus *Lec.*
  lineatus *Lec.*
  sculptus *Lec.*
  holmbergi *Mäkl.*
Hydræna pennsylvanica *Kies.*
Hydrophilus triangularis *Say.*
Berosus infuscatus *Lec.*
  rugulosus *Horn.*
Chætarthria nigrella *Lec.*
  minor sp. nov.
  pallida *Lec.*
Limnebius piceus *Horn.*
Laccobius ellipticus *Lec.*
Philydrus carinatus *Lec.*
  nebulosus *Say.*
  californicus *Horn.*
  diffusus *Lec.*
Helochares normatus *Lec.*
Cymbiodyta punctatostriata *Horn.*
  dorsalis *Mots.*
Hydrobius fuscipes *Linn.*

SILPHIDÆ.

- Necrophorus marginatus *Fab.*
  - guttula *Mots.*
  - pustulatus var. nigritus *Mann.*
- Silpha lapponica *Hbst.*
  - ramosa *Say.*
- Agyrtes longulus *Lec.*
- Pinodytes cryptophagoides *Mann.*
- Ptomaphagus consobrinus *Lec.*
  - californicus *Lec.*
- Hydnobius latidens *Lec.*
- Anisotoma humeralis *Horn.*
  - difficilis *Horn.*
  - paludicola *Cr.*
  - obsoleta *Melsh.*
- Cyrtusa picipennis *Lec.*
- Agathidium revolvens *Lec.*
  - concinnum *Mann.*
  - virile sp. nov.
  - pulchrum *Lec.*
- Clambus sp.

SCYDMÆNIDÆ.

- Connophron occidens *Csy.*
  - digressum *Csy.*
- Scydmænus ovipennis *Csy.*
- Veraphis colon *Horn.*
- Ceramphis deformata *Horn.*
- Papusus macer *Csy.*

PSELAPHIDÆ.

- Articerus fuchsii var. californicus *Brend.*
- Biotus formicarius *Csy.*
- Ctenisis dispar *Sharp.*
- Tychus tenellus *Lec.*
  - hexagonus *Csy.*
- Scalenarthrus hornii *Lec.*
- Decarthron brendeli *Csy.*
- Pselaptus belfragei *Lec.*
- Reichenbachia deformata *Lec.*
  - falli *Csy.*
- Reichenbachia turgidicornis *Csy.*
  - tumidicornis *Csy.*
  - sagax *Lec.*
- Bryaxis foveata *Lec.*
  - loripes *Csy.*
- Oropus sp.
- Sagola isabellæ *Lec.*
- Euplectus orbiceps *Csy.*
  - californicus *Csy.*
- Actium californicum *Lec.*

STAPHYLINIDÆ.

- Falagria læviuscula *Lec.*
  - cavipennis *Lec.*
  - sp. dub.
- Echidnoglossa
  - five species
- Hoplandria (?) sp.
- Pontomalota opaca *Lec.*
- Atheta
  - twenty-five species
- Lomechusa angusta sp. nov.
- Tarphiota pallidipes *Csy.*
  - fucicola *Mäkl.*
- Tachyusa
  - four species
- Tinotus caviceps *Csy.*
- Myrmedonia fauvelii *Sharp.*
- Phloeopora (?)
  - two species
- Polystoma arenaria *Csy.*
  - pacifica *Csy.*
- Aleochara sulcicollis *Mann.*
  - puberula *Klug.*
  - four undetermined species.
- Maseochara valida *Lec.*

Maseochara puberula *Csy.*
Thiasophila sp.
Isoglossa sp.
Oxypoda
  five species
Thinusa sp.
Bolitochara californica *Csy.*
  sp.
Leptusa sp.
Oligota sp.
Bryobiota bicolor *Csy.*
Somatium oviforme *Csy.*
Gyronycha obscura *Csy.*
  sp.
Bamona falliana *Csy.*
Myllaena sp.
Acylophorus pronus *Er.*
Heterothops fumatus
  var. californicus *Lec.*
  carbonatus sp. nov.
  pusio *Lec.*
  occidentis *Csy.*
Quedius explanatus *Lec.*
  fulgidus *Fab.*
  erythrogaster *Mann.*
  capucinus *Grav.*
  desertus *Horn.*
  limbifer *Horn.*
  prostrans *Horn.*
Thinopinus pictus *Lec.*
Creophilus villosus *Grav.*
Hadrotes crassus *Mann.*

Philonthus discoideus *Grav.*
  alumnus *Er.*
  pettiti *Horn.*
  triangulum *Horn.*
  ferreipennis *Horn.*
  sordidus *Grav.*
  versutus *Horn.*
  virilis *Horn.*
  nigritulus *Grav.*
  instabilis *Horn.*
  quadrulus *Horn.*
  lecontei *Horn.*
Actobius ocreatus *Horn.*
  sobrinus *Er.*
  puncticeps *Horn.*
  gratus *Lec.*
  pæderoides *Lec.*
  elegantulus *Horn.*
  formosus sp. nov.
Cafius canescens *Mann.*
  seminitens *Horn.*
  lithocharinus *Lec.*
  luteipennis *Horn.*
  sulcicollis *Lec.*
  decipiens *Lec.*
  opacus *Lec.*
Xantholinus cephalus *Say.*
  picipennis *Lec.*
  dimidiatus *Lec.*
  obscurus *Er.*
  nanus *Lec.*
  pusillus *Sachse.*

Stenus terricola *Csy.*
vestalis *Csy.*
californicus *Csy.*
gilæ *Csy.*
sayi *Csy.*
pinguis *Csy.*
lætulus *Csy.*
lucidus *Csy.*
two species undetermined
Cryptobium tumidum *Lec.*
californicum *Lec.*
species undetermined
Lathrobium puncticeps *Lec.*
jacobinum *Lec.*
californicum *Lec.*
lituarium *Lec.*
sp. nov.
Caloderma rugosa *Csy.*
continens *Csy.*
mobile *Csy.*
reducta *Csy.*
three species undetermined
Medon malaca *Csy.*
latiuscula *Csy.*
four species undetermined
Lithocharis ochracea *Grav.*
Stilicus occiduus sp. nov.
Pæderus femoralis *Lec.*
compotens *Lec.*
ustus *Lec.*
Sunius californicus *Aust.*
longiusculus *Mann.*
Scopæus truncaticeps *Csy.*
armiger sp. nov.
Scopæodera nitida *Lec.*
Leptorus texanus *Csy.*
californicus sp. nov.
longipennis sp. nov.
Orus punctatus *Csy.*
fraternus sp. nov.
montanus sp. nov.
Pinophilus densus *Lec.*
Palaminus lividus *Lec.*
Tachinus agilis *Horn.*
Tachinus debilis *Horn.*
Tachyporus californicus *Horn.*
nitidulus *Fab.*
Cilea silphoides *Linn.*
Erchomus punctipennis *Lec.*
Conosoma bipustulatum *Grav.*
castaneum *Horn.*
Boletobius cincticollis *Say.*
Bryoporus sp. dub.
Pseudopsis obliterata *Lec.*
detrita sp. nov.
minuta sp. nov.
Oxyporus sp. nov.
Bledius ferratus *Lec.*
jacobinus *Lec.*
armatus *Er.*
cribricollis *Lec.*
eximius *Csy.*
flavipennis *Lec.*
nitidiceps *Lec.*
relictus sp. nov.
opacifrons *Lec.*
punctatissimus *Lec.*
laticollis *Lec.*
luteipennis *Lec.*
rusticus sp. nov.
ruficornis *Lec.*
clarus sp. nov.
pleuralis *Lec.*
diagonalis *Lec.*
ornatus *Lec.*
phytosinus *Lec.*
forcipatus *Lec.*
Platystethus americanus *Er.*
Oxytelus sculptus *Grav.*
sobrinus *Lec.*
Haploderus cephalotes *Csy.*
flavipennis *Csy.*
Trogophlœus dentiger *Csy.*
gilæ *Csy.*
prominens *Csy.*
pacificus *Csy.*
diffusus *Csy.*
confinis *Csy.*

- Trogophlœus pauperculus *Csy.*
  - debilis *Csy.*
  - blediinus *Csy.*
  - filum *Csy.*
  - tantillus *Csy.*
- Apocellus analis *Lec.*
  - gracilicornis *Csy.*
  - sphæricollis *Say.*
- Ancyrophorus planus *Lec.*
- Thinobius oxytelinus *Lec.* (?).
  - hesperius *Csy.*
  - sp. nov.
- Zalobius serricollis *Lec.*
- Geodromicus temporalis *Csy.*
- Amphichroum floribundum *Lec.*
  - puberulum *Fauv.*
- Lathrimæum subcostatum *Mäkl.*
- Homalium strigipenne *Mäkl.*
- Homalium repandum *Er.*
  - plagiatum *Mann.*
  - humile *Mäkl.*
  - alutaceum *Fauv.*
  - theveneti *Fauv.*
  - two species undetermined
- Anthobium atriventre *Csy.*
  - nigerrimum *Csy.*
  - two species undetermined
- Orobanus rufipes *Csy.*
- Protinus
  - two species
- Lispinus californicus *Lec.*
  - linearis *Er.*
- Glyptoma costale *Er.*
- Trigonurus edwardsii *Sharp.*
- Micropeplus punctatus *Mäkl.*
  - sp. nov. (?).

TRICHOPTERYGIDÆ.

- Motschulskium sinuatocolle *Matth.*
- Ptilium sp.
- Ptenidium pullum *Mäkl.*
- Trichopteryx laticollis *Mann.*
  - several species not identified.
- Smicrus filicornis *Fairm.*

HYDROSCAPHIDÆ.

Hydroscapha natans *Lec.*

SPHÆRIIDÆ.

Sphærius politus *Horn.*

SCAPHIDIIDÆ.

CORYLOPHIDÆ.

- Sacium amabile *Lec.*
    - decolor *Lec.*
    - scitulum *Lec.*
- Sericoderus flavidus *Lec.*
- Orthoperus
    - two species unidentified
- Aenigmaticum californicum *Csy.*

COCCINELLIDÆ.

- Anisosticta seriata *Melsh.*
- Megilla maculata *De G.*
    - vittigera *Mann.*
- Hippodamia 5-signata *Kirby.*
    - ambigua *Lec.*
    - convergens *Guér.*
    - spuria *Lec.*
    - parenthesis *Say.*
- Coccinella 9-notata *Hbst.*
        - var. franciscana *Muls.*
    - transversoguttata var. transversalis *Muls.*
        - var. californica *Mann.*
- Cycloneda sanguinea *Linn.*
    - oculata *Fab.*
    - abdominalis *Say.*
- Harmonia picta *Rand.*
- Mysia hornii *Cr.*
- Psyllobora 20-maculata var. tædata *Lec.*
- Chilocorus bivulnerus *Muls.*
    - cacti *Linn.*
- Exochomus pilatii *Muls.*
    - californicus *Csy.*
    - fasciatus *Csy.*
    - childreni *Muls.*
    - histrio sp. nov.
- Cryptognatha pusilla *Lec.*
    - catalinæ *Horn.*
- Smilia reversa sp. nov.
    - ovalis *Lec.*
- Hyperaspis fimbriolata *Melsh.*
        - var. dissoluta *Cr.*
    - lateralis *Muls.*
    - tæniata *Lec.*
    - excelsa sp. nov.
    - undulata *Say.* (?)
    - spiculinota sp. nov.
    - annexa *Lec.*
    - tristis *Lec.*
- Hyperaspidius trimaculatus *Linn.*
    - arcuatus *Lec.*
- Scymnus tædatus sp. nov.
    - sordidus *Horn.*
    - guttulatus *Lec.*
    - nebulosus *Lec.*
    - pallens *Lec.*
    - mimus sp. nov.
    - cinctus *Lec.*
    - pacificus *Cr.*
    - flebilis *Horn.*
    - cervicalis *Muls.*
    - marginicollis *Mann.*
    - ardelio *Horn.*
    - punctum *Lec.*
    - nanus *Lec.*
    - coniferarum *Cr.*
- Scymnillus aterrimus *Horn.*
- Cephaloscymnus occidentalis *Horn.*
    - ornatus *Horn.*
- Rhizobius lophanthæ *Blaisd.*

ENDOMYCHIDÆ.

- Gen. et sp. dub.
- Aphorista morosa *Lec.*
    - læta *Lec.*

EROTYLIDÆ.

- Languria californica sp. nov.
- Dacne californica *Horn.*
- Tritoma californica *Lec.*

COLYDIIDÆ.

Rhagodera tuberculata *Mann.*
Anchomma costatum *Lec.*
Synchita variegata *Lec.*
Ditoma ornata *Lec.*
  sulcata *Lec.*
Phlœonemus catenulatus *Horn.*
Lasconotus linearis *Cr.*
Lasconotus servus *Horn.*
  pusillus *Lec.*
Aulonium longum *Lec.*
Aglenus brunneus *Gyll.*
Oxylæmus californicus *Cr.*
Cerylon castaneum *Say.*

RHYSSODIDÆ.

Rhyssodes hamatus *Lec.*

CUCUJIDÆ.

Silvanus surinamensis *Linn.*
  bidentatus *Fab.*
  imbellis *Lec.*
Cathartus advena *Waltl.*
  opaculus *Lec.*
Nausibius clavicornis *Kug.*
Narthecius grandiceps *Lec.*
Pediacus depressus *Hbst.*
Læmophlæus biguttatus *Say.*
Læmophlæus nitens *Lec.*
  hornii *Csy.*
  cephalotes *Lec.*
  ferrugineus *Steph.*
  pusillus *Sch.*
Lathropus vernalis *Lec.*
  pubescens Csy.
Brontes dubius var. truncatus *Mots.*

CRYPTOPHAGIDÆ.

Henoticus sp.
Cryptophagus cellaris *Scop.*
  debilis *Lec.*
  lecontei *G. & H.*
Cryptophagus
  two species unidentified
Atomaria lætula *Lec.* (?)
  two species unidentified

MYCETOPHAGIDÆ.

- Anthrenus verbasci *Linn.*
- Cryptorhopalum balteatum *Lec.*
  - apicale *Mann.*
- Cryptorhopalum ruficorne *Lec.*
  - species undescribed
- Orphilus niger *Rossi.*

HISTERIDÆ.

- Hololepta yucateca *Mars.*
  - cacti *Lec.*
  - vicina *Lec.*
  - populnea *Lec.*
  - neglecta *Blaisd.*
- Hister sellatus *Lec.*
  - lucanus *Lec.*
  - simplicipes sp. nov.
  - sexstriatus *Lec.*
  - militaris *Horn.*
  - bimaculatus *Linn.*
  - lecontei *Mars.*
  - punctiger *Lec.*
- Tribalister marginellus *Lec.* (?)
- Tribalus californicus *Horn.*
- Epierus regularis *Beauv.*
  - planulus *Er.*
  - nasutus *Horn.*
- Onthophilus lecontei *Horn.*
- Paromalus difficilis *Horn.*
- Carcinops opuntiæ *Lec.*
  - tejonicus *Horn.*
  - gilensis *Lec.*
  - consors *Lec.*
  - tenellus *Er.*
- Anapleus marginatus *Lec.*
- Saprinus discoidalis *Lec.*
  - interstitialis *Lec.*
  - pectoralis *Lec.*
  - *behrensii Horn.*
  - obscurus *Lec.*
  - pæminosus *Lec.*
- Saprinus alienus *Lec.*
  - lugens *Er.*
  - oregonensis *Lec.*
  - lutiolus sp. nov.
  - scissus *Lec.*
  - laridus *Lec.*
  - insertus *Lec.*
  - ciliatus *Lec.*
  - vitiosus *Lec.*
  - lubricus *Lec.*
  - plenus *Lec.*
  - fimbriatus *Lec.*
  - cærulescens *Lec.*
  - intritus *Csy.*
  - consobrinus sp. nov.
  - bigemmeus *Lec.*
  - estriatus *Lec.*
  - lucidulus *Lec.*
  - propensus *Csy.*
  - gaudens *Lec.*
  - serrulatus *Lec.*
  - sulcifrons *Lec.*
- Plegaderus fraternus *Horn.*
  - nitidus *Horn.*
  - consors *Horn.*
- Teretrius placitus *Horn.*
  - obliquulus *Lec.*
- Abræus bolteri *Lec.*
- Bacanius globulinus *Csy.*
- Acritus maritimus *Lec.*
  - volitans sp. nov.
- Æletes basalis *Lec.*

NITIDULIDÆ.

- Brachypterus troglodytes *Murr.*
- Cercus sericans *Lec.*
- Amartus tinctus *Mann.*
  - rufipes *Lec.*
- Athonæus agavensis *Cr.*
- Carpophilus yuccæ *Cr.*
  - hemipterus *Linn.*
  - pallipennis *Say.*

- Carpophilus dimidiatus *Fab.*
  - decipiens *Horn.*
  - discoideus *Lec.*
- Colastus truncatus *Rand.*
- Conotelus mexicanus *Murr.*
- Epuræa
  - species near rufa (?)
  - terminalis *Mann.*
  - avara *Rand.*
- Epuræa ovata *Horn.*
- Nitidula ziczac *Say.*
- Omosita discoidea *Fab.*
- Perthalycra murrayi *Horn.*
- Meligethes brassicæ *Scop.*
- Cybocephalus californicus *Horn.*
- Cryptarcha concinna *Melsh.*
- Smicrips hypocoproides *Reitt.*
- Pityophagus rufipennis *Horn.*

LATHRIDIIDÆ.

- Holoparamecus kunzei *Aubé.*
  - pacificus *Lec.*
  - caularum *Aubé.*
- Metophthalmus rudis *Fall.*
  - trux *Fall.*
- Lathridius armatulus *Fall.*
- Coninomus constrictus *Gyll.*
  - australicus *Belon.*
- Enicmus suspectus *Fall.*
  - desertus *Fall.*
  - minutus *Linn.*
  - crenatus *Lec.*
  - tenuicornis *Lec.*
- Cartodere argus *Reitt.*
- Revelieria californica *Fall.*
- Corticaria planula *Fall.*
  - serrata *Payk.*
  - occidua *Fall.*
  - tenuipes *Fall.*
  - elongata *Gyll.*
  - ferruginea *Marsh.*
- Melanophthalma casta *Fall.*
  - simplex *Lec.*
  - insularis *Fall.*
  - distinguenda *Com.*
  - gibbosa *Hbst.*
  - incompta *Fall.*
  - similata *Gyll.*
  - americana *Mann.*
- Fuchsina occulta *Fall.*

TROGOSITIDÆ.

- Alindria teres *Melsh.*
- Trogosita virescens *Fab.*
  - yuccæ *Cr.*
- Tenebrioides sinuata *Lec.*
- Peltis pippingskœldi *Mann.*
- Grynocharis pilosula *Cr.*

PARNIDÆ.

Psephenus falli *Csy.*
Throscinus crotchii *Lec.*
Dryops productus *Lec.*
    suturalis *Lec.*
Elmis divergens *Lec.*
    foveatus *Lec.*
Stenelmis nubifer sp. nov.
Macronychus parvulus *Horn.*

HETEROCERIDÆ.

Heterocerus gnatho *Lec.*
    gemmatus *Horn.*
Heterocerus collaris *Kies.*
    pusillus *Say.*

DASCYLLIDÆ.

Eurypogon confusus sp. nov.
Allopogon villosus *Horn.*
Anorus piceus *Lec.*
Eucinetus infumatus *Lec.*
Helodes apicalis *Lec.*
Helodes
    species undescribed
Cyphon exiguus *Horn.*
    concinnus *Lec.*
    variabilis *Thumb.*
Placonycha edwardsii *Lec.*

RHIPICERIDÆ.

Sandalus californicus *Lec.*

ELATERIDÆ.

Sarpedon scabrosus *Bonv.*
Adelocera sparsa *Cand.*
Meristhus cristatus *Horn.*
Chalcolepidius webbii *Lec.*
    tartarus *Fall.*
Alaus melanops *Lec.*
Cardiophorus amplicollis *Mots.*
    gemmifer *Blanch.*
    luridipes *Cand.*
    edwardsii *Horn.*
    latiusculus *Esch.*
    tenebrosus *Lec.*
    æneus *Horn.*
    seniculus *Blanch.*
Horistonotus inanus *Lec.*
    basalis *Horn.*
    sufflatus *Lec.*
    simplex *Lec.*
    flavidus sp. nov.
Esthesopus dispersus *Horn.*
Cryptohypnus squalidus *Lec.*
Hypnoideus striatulus *Lec.*
    ornatus *Lec.*
    gradarius *Horn.*
Hypnoideus pectoralis *Say.*
Anchastus cinereipennis *Mann.*
    bicolor var. desertus *Horn.*
Elater hepaticus *Melsh.*
    fastus *Lec.*
    cordifer *Lec.*
    ater *Lec.*
    longicornis *Lec.*
    carbonicolor *Esch.* (?)
    dimidiatus *Lec.*
Drasterius livens *Lec.*
Megapenthes tartareus *Lec.*
    turbulentus *Lec.*
    aterrimus *Horn.*
    stigmosus *Lec.*
Ludius lecontei *Horn.*
    ater *Cand.*
Agriotes imperfectus *Lec.*
    hispidus *Lec.*
Dolopius lateralis *Esch.*
Melanotus longulus *Lec.*
    fissilis *Say.*
    cribricollis *Cand.*
    variolatus *Lec.*

- Melanotus sp. nov.
- Limonius mirus *Lec.*
  - crotchii *Horn.*
  - occidentalis *Cand.*
  - ornatulus *Lec.*
  - pilosus *Lec.*
  - californicus *Mann.*
  - canus *Lec.*
- Athous excavatus *Mots.*
  - limbatus *Lec.*
  - two undescribed species
- Sericosomus debilis *Lec.*
  - *flavipennis Mots.*
- Corymbites maurus *Say.*
  - jaculus *Lec.*
  - fallax *Say.*
- Corymbites pruininus *Horn.*
  - leucaspis *Germ.*
- Asaphes morio *Lec.*
  - dilaticollis *Mots.*
  - tumescens *Lec.*
- Melanactes densus *Lec.*
- Aphricus californicus *Lec.*
- Aplastus angusticollis *Horn.*
  - corymbitoides *Horn.*
  - speratus *Lec.*
  - molestus *Horn.*
- Plastocerus schaumii *Lec.*
- Euthysanius lautus *Lec.*
  - pretiosus *Lec.*
- Perothops witticki *Lec.*

THROSCIDÆ.

- Throscus sejunctus *Horn.*
  - parvulus *Lec.*
- Throscus sericeus *Lec.*
- Pactopus hornii *Lec.*

BUPRESTIDÆ.

- Gyascutus planicosta *Lec.*
  - obliteratus *Lec.*
- Hippomelas californicus *Horn.*
- Dicerca californica *Cr.*
  - hornii *Cr.*
  - pectorosa *Lec.*
- Pœcilonota ferrea *Melsh.* (?)
- Buprestis gibbsii *Lec.*
  - læviventris *Lec.*
  - maculiventris *Say* var.
- Chrysobothris femorata *Fab.*
  - contigua *Lec.*
  - cuprascens *Lec.*
  - speculifer *Horn.* (?)
  - californica *Lec.*
  - mali *Horn.*
  - deserta *Horn.*
  - merkelii *Horn.*
  - prasina *Horn.*
  - lucana *Horn.*

Acmæodera coquilletti *Fall.*
angelica *Fall.*
tuta *Horn.*
hepburnii *Lec.*
quadriseriata *Fall.*
morbosa *Fall.*
flavosticta *Horn.*
acuta *Lec.*
labyrinthica *Fall.*
connexa *Lec.*
variegata *Lec.*
vandykei *Fall.*
prorsa *Fall.*
dohrni *Horn.*
dolorosa *Fall.*
postica *Fall.*
alicia *Fall.*
versuta *Horn.*
guttifera *Lec.*

Acmæodera quadrivittata *Horn.*
gemina *Horn.*
gibbula *Lec.*
comata *Lec.*
alacris *Horn.*
Ptosima walshii *Lec.*
Chrysophana placida *Lec.*
Agrilus angelicus *Horn.*
niveiventris *Horn.*
walsinghami *Cr.*
obolinus *Lec.*
jacobinus *Horn.*
politus *Say.*
blandus *Horn.*
gibbicollis sp. nov.
illectus sp. nov.
lacustris *Lec.*
Taphrocerus gracilis *Say.* (*?*)

LAMPYRIDÆ.

Eros lætus *Mots.*
Ellychnia californica *Mots.*
corrusca *Linn.*
Pyropyga fenestralis *Melsh.*
Microphotus angustus *Lec.*
Pterotus obscuripennis *Lec.*
Zarhipis integripennis *Lec.*
Mastinocerus opacus *Horn.*
Cenophengus debilis *Lec.*
Podabrus comes *Lec.*
species undescribed

Silis cava *Lec.*
filigera *Lec.*
Telephorus consors *Lec.*
notatus *Mann.* (*?*)
ingenuus *Lec.*
ochropus *Lec.*
lautus *Lec.*
Polemius languidus *Horn.*
Ditemnus obtusus *Lec.*
Malthodes laticollis *Lec.*
fusculus *Lec.*

MALACHIDÆ.

Collops marginicollis *Lec.*
cribrosus *Lec.*
argutus sp. nov.
punctulatus *Lec.*
marginellus *Lec.*
species undescribed
Endeodes abdominalis *Lec.*
collaris *Lec.*
Malachius auritus *Lec.*
inornatus sp. nov.

Malachius pristinus sp. nov.
acutipennis sp. nov.
thevenetii *Horn.*
directus sp. nov.
nigrinus sp. nov.
prolixicornis sp. nov.
Tanaops abdominalis *Lec.*
Microlipus laticeps *Lec.*
longicollis *Mots.*
Pseudebæus bicolor *Lec.* (*?*)

Attalus trimaculatus *Mots.*
rufomarginatus *Mots.*
oregonensis *Horn.*
basalis *Lec.*
cinctus *Lec.*
difficilis *Lec.*
lobulatus *Lec.*
transmarinus *Fall.*
Pristoscelis grandiceps *Lec.*
Eudasytes ursinus *Csy.*
Asydates rufiventris *Csy.*
explanatus *Csy.*
Trichochrous compactus *Csy.*
antennatus *Mots.*
griseus *Lec.*
apicalis *Csy.*
umbratus *Lec.*
propinquus Csy.
fulvovestitus Csy.
suffusus *Csy.*
testaceus *Csy.*
subcalvus *Csy.*
prominens *Csy.*
cuspidatus *Csy.*
fuscus *Lec.*
seriellus *Csy.*
brevicornis *Lec.*
vilis Csy.
insignis *Csy.*
suturalis *Lec.*
conspersus *Csy.*
lobatus *Csy.*

Trichochrous crinifer *Csy.*
fulvescens *Csy.*
squalidus *Lec.*
pedalis *Lec.*
nigrinus *Csy.*
ænescens *Lec.*
politus *Csy.*
punctipennis *Lec.*
ten or twelve doubtful or undescribed species
Adasytes laciniatus *Csy.*
Listrus interruptus *Lec.* (?)
obscurellus *Lec.*
extricatus *Csy.*
difficilis *Lec.*
luteipes *Lec.*
balteellus *Csy.*
famelicus *Csy.*
definitus sp. nov.
Dasytellus inconspicuus *Csy.*
Dasytes dissimilis *Csy.*
clementæ sp. nov.
macer *Csy.*
pusillus *Lec.*
musculus sp. nov.
lineellus *Csy.*
Dasytastes catalinæ *Lec.*
remissus *Csy.*
bicolor *Csy.*
insularis sp. nov.
Eschatocrepis constrictus *Lec.*
Allonyx sculptilis *Lec.*

- Clerus mœstus *Kl.*
- Hydnocera robusta *Horn.*
  - scabra *Lec.*
  - discoidea *Lec.*
  - sp. near pallipennis *Say.*
  - bicolor *Lec.*
- Chariessa elegans *Horn.*
  - dichroa *Lec.*
- Cregya fasciata *Lec.*
- Lebasiella maculicollis *Lec.*
- Corynetes rufipes *Fab.*
  - ruficollis *Fab.*

PTINIDÆ.

- Ptinus verticalis *Lec.*
  - interruptus *Lec.*
- Hedobia granosa *Lec.*
- Ernobius debilis *Lec.*
  - undescribed species
- Ozognathus cornutus *Lec.*
  - misellus *Lec.*
- Xestobium
  - undescribed species
- Oligomerus
  - three undescribed species
- Sitodrepa panicea *Linn.*
- Ctenobium
  - undescribed species
- Ptinodes setifer *Lec.*
- Hadrobregmus gibbicollis *Lec.*
- Trypopitys punctatus *Lec.*
  - tenuilineata *Horn.*
- Petalium bistriatum *Say.*
- Vrilletta convexa *Lec.*
- Xyletinus lugubris *Lec.*
- Catorama frontalis *Lec.*
- Hemiptychus pusillus *Lec.*
  - latus *Horn.*
  - luteotectus sp. nov.
  - palliatus sp. nov.
- Hemiptychus
  - two undescribed species
- Cænocara californica *Lec.*
- Ptilinus basalis *Lec.*
  - ramicornis *Csy.*
  - flavipennis *Csy.*
- Sinoxylon sericans *Lec.*
  - sextuberculatum *Lec.*
  - declive *Lec.*
  - suturale *Horn.*
- Bostrychus californicus *Horn.*
- Amphicerus fortis *Lec.*
  - punctipennis *Lec.*
  - teres *Horn.*
- Dinapate wrightii *Horn.*
- Dinoderus pacificus *Csy.*
  - sobriuus *Csy.*
- Polycaon stoutii *Lec.*
  - confertus *Lec.*
  - megalops sp. nov.
- Psoa maculuta *Lec.*
  - quadrisignata *Horn.*
- Lyctus planicollis *Lec.*
  - parvulus *Csy.*
  - californicus *Csy.*

CUPESIDÆ.

- Cupes lobiceps *Lec.*

CIOIDÆ.

- Cis versicolor *Csy.*
  - vitula *Csy.*
  - duplex *Csy.*
- Plesiocis cribrum *Csy.*
- Ennearthron grossulum *Csy.*
  - convergens *Csy.*

SPHINDIDÆ.

Odontosphindus clavicornis *Csy.*

LUCANIDÆ.

Sinodendron rugosum *Mann.*

SCARABÆIDÆ.

Canthon simplex *Lec.*
        var. humeralis *Horn.*
    lævis *Drury.*
    perplexus *Lec.*
Copris mœchus *Lec.*
Ægialia conferta *Horn.*
    latispina *Lec.*
    crassa *Lec.*
Psammodius nanus *De Geer.*
    cælatus *Lec.*
Rhyssemus californicus *Horn.*
Atænius desertus *Horn.*
    abditus *Hald.*
    gracilis *Melsh.*
    californicus *Horn.*
    lobatus *Horn.*
Aphodius granarius *Linn.*
    vittatus *Say.*
    lividus *Oliv.*
    rugifrons *Horn.*
    consociatus *Horn.*
    subænius *Lec.*
    alternatus *Horn.*
    cribratus

Trox punctatus *Germ.*
    gemmulatus *Horn.*
    atrox *Lec.*
Amphicoma ursina *Lec.*
    edwardsii *Horn.*
    canina *Horn.*
Oncerus floralis *Lec.*
Hoplia sackenii *Lec.*
    callipyge *Lec.*
    pubicollis *Lec.*
Gymnopyge hopliæformis *Linell.*
Dichelonycha crotchii *Horn.*
    fuscula *Lec.*
    truncata *Lec.*
    pusilla *Lec.*
    undescribed species
Cœnonycha rotundata *Lec.*
    socialis *Horn.*
Serica fimbriata *Lec.*
    elongatula *Horn.*
    mixta *Lec.*
    alternata *Lec.*
Plectrodes riversi *Csy.*
    carpenteri *Lec.*

- Listrochelus mucoreus *Lec.*
- Polyphylla decemlineata *Say.*
  - crinita *Lec.*
- Thyce marginata *Csy.*
- Phobetus comatus *Lec.*
- Anomala centralis *Lec.*
- Cotalpa ursina *Horn.*
  - granicollis *Hald.*
- Cyclocephala immaculata *Oliv.*
  - longula *Lec.*
  - villosa *Burm.*
- Cyclocephala hirta *Lec.*
  - dimidiata *Burm.*
- Ligyrus gibbosus *De G.*
- Euphoria verticalis *Horn.*
- Cremastochilus wheeleri *Lec.*
  - ineptus *Horn.*
  - schaumii *Lec.*
  - westwoodi *Horn.*
  - pilosicollis *Horn.*
  - crinitus *Lec.*

SPONDYLIDÆ.

- Parandra brunnea *Fab.*
- Spondylis upiformis *Mann.*

CERAMBYCIDÆ.

- Ergates spiculatus *Lec.*
- Mallodon melanopus *Linn.*
- Derobrachus geminatus *Lec.*
- Prionus californicus *Mots.*
- Asemum nitidum *Lec.*
- Criocephalus productus *Lec.*
  - asperatus *Lec.*
- Hylotrupes amethystinus *Lec.*
  - ligneus *Fab.*
- Phymatodes blandus *Lec.*
  - obscurus *Lec.*
  - decussatus *Lec.*
  - juglandis *Leng.*
- Callidium antennatum *Newm.*
  - hirtellum *Lec.*
- Malacopterus lineatus *Guer.*
- Œme gracilis *Lec.*
- Eucrossus villicornis *Lec.*
- Brothylus gemmulatus *Lec.*
- Romaleum simplicicolle *Hald.*
  - seminitidum *Horn.*
- Elaphidion albofasciatum *Linell.*
  - imbelle *Lec.*
- Aneflus linearis *Lec.*
- Pœcilobrium chalybæum
- Hybodera debilis *Lec.*
- Callimus cyanipennis *Lec.*
  - ruficollis *Lec.*
- Megobrium edwardsii *Lec.*
- Molorchus longicollis *Lec.*
- Callimoxys fuscipennis *Lec.*
- Rosalia funebris *Mots.*
- Dendrobias mandibularis *Serv.*
- Lissonotus multifasciatus *Dup.*
- Tragidion annulatum *Lec.*
  - armatum *Lec.*
- Metaleptus angulatus *Chev.*
- Amannus pectoralis *Lec.*
- Batyle suturalis *Say.*
- Oxoplus jocosus *Horn.*
- Crossidius testaceus *Lec.*
- Ischnocnemis bivittatus *Dup.*
- Stenosphenus debilis *Horn.*
- Cyllene antennatus *White.*
  - crinicornis *Chev.*
- Calloides lorquinii *Buq.*
- Clytus lanifer *Lec.*
- Xylotrechus nauticus *Mann.*
  - obliteratus *Lec.*
- Neoclytus irroratus *Lec.*
- Atimia dorsalis *Lec.*
- Desmocerus cribripennis *Horn.*
  - californicus *Horn.*
- Necydalis barbaræ *Rivers.*
- Ulochætes leoninus *Lec.*
- Centrodera nevadica *Lec.*

Toxotus vestitus *Hald.*
Pachyta spurca *Lec.*
Anthophilax tenebrosus *Lec.*
Acmæops tumida *Lec.*
    falsa *Lec.*
Strangalia delicata *Lec.*
Leptura molybdica *Lec.*
    læta *Lec.*
    tribalteata *Lec.*
    coquilletti *Linell.*
    instabilis *Hald.*
        var. convexa *Lec.*
    sexspilota *Lec.*
    pernigra *Linell.*
    crassipes *Lec.*
Leptura valida *Lec.*
Ophistomis ventralis *Horn.*
Ipochus fasciatus *Lec.*
Monilema spoliatum *Horn.*
Synaphœta guexi *Lec.*
Cœnopœus palmeri *Lec.*
Acanthocinus obliquus *Lec.*
    spectabilis *Lec.*
Pogonocherus crinitus *Lec.*
Lypsimena californica *Horn.*
Saperda mœsta *Lec.*
Oberea schaumii *Lec.*
Tetraopes femoratus *Lec.*
Idœmea californica sp. nov.
Methia sp.

CHRYSOMELIDÆ.

Aulacoscelis purpurea *Horn.*
Zeugophora californica *Cr.*
Lema nigrovittata *Guér.*
Euryscopa subtilis *Horn.*
    vittata *Lec.*
    lecontei *Cr.*
Coscinoptera canella *Lec.*
    mucorea *Lec.*
    æneipennis *Lec.*
Babia 4-guttata *Oliv.* var.
Saxinis saucia *Lec.*
    politula *Horn.*
    speculifera *Horn.*
    hornii sp. nov.
Chlamys sp.
Diachus auratus *Fab.*
Myochrous longulus *Lec.*
Glyptoscelis illustris *Cr.*
    sqamulatus *Cr.*
    alternatus *Cr.*
Colaspidea cuprascens *Lec.*
    smaragdulus *Lec.*
    varicolor *Cr.*
    subvittata *Fall.*
Typophorus viridicyaneus *Cr.*
    canellus *Fab.*
Metachroma californica *Cr.*
Chrysochus cobaltinus *Lec.*
Leptinotarsa behrensi *Harold.*
    11-lineata *Stål*

- Monoxia consputa *Lec.*
  - debilis *Lec.*
  - sordida *Lec.*
- Diabrotica 12-punctata *Fab.*
    - var. tenella *Lec.*
  - soror *Lec.*
  - trivittata *Mann.*
- Phyllobrotica viridipennis *Lec.*
  - luperina *Lec.*
  - nigripes *Horn.*
- Scelolyperus flavicollis *Lec.*
  - maculicollis *Lec.*
  - graptoderoides *Cr.*
- Trachyscelida bicolor *Lec.*
- Luperodes bivittatus *Lec.*
  - transitus *Horn.*
  - laticeps *Horn.*
  - torquatus *Lec.*
  - smaragdinus *Lec.*
  - morrisoni *Jac.*
  - varipes *Lec.*
- Malacorhinus maculatus *Lec.*
- Œdionychis violascens *Lec.*
- Disonycha pennyslvanica *Illig.*
  - 5-vittata *Say.*
  - maritima *Mann.*
- Haltica bimarginata *Say.*
  - carinata *Germ.*
  - californica *Mann.*
  - æruginosa *Lec.*
  - obolina *Lec.*
  - punctipennis *Lec.*
  - undescribed species
- Hemiglyptus basalis *Cr.*
- Crepidodera helxines *Linn.*
- Epitrix cucumeris *Harris.*
  - subcrinita *Lec.*
  - parvula *Fab.*
- Leptotrix recticollis *Lec.*
- Chætocnema opacula *Lec.*
  - subviridis *Lec.*
  - opulenta *Horn.*
  - ectypa *Horn.*
- Systena tæniata *Say.*
- Longitarsus repandus *Lec.*
  - livens *Lec.*
  - montivagus *Horn.*
  - mancus *Lec.*
  - undescribed species
- Glyptina cerina *Lec.*
  - atriventris *Horn.*
- Phyllotreta lepidula *Lec.*
  - vittatta *Fab.* (?)
  - albionica *Lec.*
  - ramosa *Cr.*
  - pusilla *Horn.*
  - undescribed species
- Dibolia ovata *Lec.* (?)
- Psylliodes punctulata *Melsh.*
  - convexior *Lec.*
- Microrhopala rubrolineata *Mann.*
  - melsheimeri *Cr.*
- Odontota californica *Horn.*
- Stenopodius flavidus *Horn.*
- Cassida texana *Cr.*
- Coptocycla aurichalcea *Fab.*

BRUCHIDÆ.

- Bruchus pisorum *Linn.*
  - sordidus *Horn.*
  - ramicornis *Boh.*
  - limbatus *Horn.*
  - pruininus *Horn.*
  - aureolus *Horn.*
  - pauperculus *Lec.*
  - prosopis *Lec.*
- Bruchus protractus *Horn.*
  - uniformis *Horn.*
  - obtectus *Say.*
  - exiguus *Horn.*
  - seminulum *Horn.*
  - three or four undescribed species
- Zabrotes spectabilis.
  - undescribed species

TENEBRIONIDÆ.

- Craniotus pubescens *Lec.*
- Edrotes ventricosus *Lec.*
  - nitidus *Csy.*
- Triorophus punctatus *Lec.*
  - lævis *Lec.*
  - subpubescens *Horn.*
- Stibia ovipennis *Horn.*
  - maritima *Csy.*
- Auchmobius sublævis *Lec.*
- Eurymetopon rufipes *Esch.*
  - fusculum *Csy.*
  - convexicolle *Lec.*
  - sodalis *Horn.*
  - serratum *Lec.*
  - inflatum *Lec.*
- Emmenastus longulus *Lec.*
  - piceus *Csy.*
  - obesus *Lec.*
  - thoracicus *Csy.*
- Epitragus pruinosus *Horn.*
- Chilometopon abnorme *Horn.*
  - helopioides *Horn.*
- Cnemodus testaceus *Horn.*
- Zopherus tristis *Lec.*
  - granicollis *Horn.*
  - induratus *Csy.*
- Phlœodes diabolicus *Lec.*
- Noserus plicatus *Lec.*
- Dacoderus striaticeps *Lec.*
- Aræoschizus sulcicollis *Horn.*
- Asida ægrota *Lec.*
  - actuosa *Horn.*
  - carinata *Lec.*
  - confluens *Lec.*
  - parallela *Lec.*
  - impetrata *Horn.*
  - obsoleta *Lec.*
  - muricatula *Lec.*
  - hirsuta *Lec.*
  - hispidula *Lec.*
  - luctata *Horn.*
  - angulata *Lec.*
  - marginata *Lec.*
  - gabbii *Horn.*
- Coniontis abdominalis *Lec.*
  - robusta *Horn.*
  - elliptica *Csy.*
  - lata *Lec.*
    - var. insularis *Csy.*
  - opaca *Horn.*
  - punctipes *Csy.*
  - subpubescens *Lec.*
  - globulina *Csy.*
  - pallidicornis *Csy.*
  - parviceps *Csy.*
- Cœlomorpha maritima *Csy.*
- Cœlus globosus *Lec.*
  - *grossus Csy.*
  - arenarius *Csy.*
  - *latus Csy.*

- Eleodes femorata *Lec.*
  - gentilis *Lec.*
  - interrupta *Blais.*
  - gracilis *Lec.*
  - grandicollis *Mann.*
  - gigantea *Mann.*
  - acuticauda *Lec.*
  - pilosa *Horn.*
  - hirsuta *Lec.*
  - scabripennis *Lec.*
  - consobrina *Lec.*
  - tenebrosa *Horn.*
  - parvicollis *Lec.*
  - subnitens *Lec.*
  - marginata *Esch.*
- Embaphion depressum *Lec.*
- Trogloderus costatus *Lec.*
- Eulabis grossa *Lec.*
  - rufipes *Esch.*
  - pubescens *Lec.*
  - laticornis *Csy.*
  - crassicornis *Csy.*
  - obscura *Lec.*
- Cerenopus concolor *Lec.*
  - costulatus *Lec.*
- Argoporis costipennis *Lec.*
  - bicolor *Lec.*
  - inconstans *Horn.*
- Amphidora littoralis *Esch.*
  - nigropilosa *Lec.*
- Cratidus osculans *Lec.*
  - fuscipilosus *Csy.*
- Stenotrichus rufipes *Lec.*
- Iphthimus
  - serratus var. sublævis *Bland.*
- Cœlocnemis dilaticollis *Mann.*
  - rugosa *Linell.*
  - obesa *Lec.*
- Cibdelis blaschkii *Mann.*
  - bachei *Lec.*
  - lævigata *Csy.*
- Tenebrio obscurus *Fab.*
  - tenebrioides *Beauv.*
- Bius estriatus *Lec.*
- Doliema plana *Fab.*
- Alæphus pallidus *Horn.*
- Eupsophus cantaneus *Horn.*
- Mecysmus angustus *Lec.*
  - tenuis *Csy.*
- Trichoton sordidum *Lec.*
- Ulus crassus *Lec.*
  - latus *Blais.*
- Blapstinus longulus *Lec.*
  - validus *Csy.*
  - dilatatus *Lec.*
  - histricus *Csy.*
  - coronadensis *Blais.*
  - rufipes *Csy.*
  - æqualis *Csy.*
  - funebris *Csy.*
  - brevicollis *Lec.*
  - pubescens *Lec.*
  - sulcatus *Lec.*
- Conibius parallelus *Lec.*
  - seriatus *Lec.*
  - crassipes *Csy.*
  - elongatus *Horn.*
- Notibius puberulus *Lec.*
  - puncticollis *Lec.*
  - granulatus *Lec.*
  - gracilis *Csy.*
  - sulcatus *Lec.*
- Cnemeplatia sericea *Horn.*
- Alaudes singularis *Horn.*
- Tribolium ferrugineum *Fab.*
  - confusum *Duv.*
- Gnathocerus cornutus *Fab.*
- Echocerus maxillosus *Fab.*
- Ulosonia marginata *Lec.*
- Merotemnus elongatus *Horn.*
- Aphanotus brevicornis *Lec.*
- Alphitobius diaperinus *Panz.*
  - piceus *Oliv.*
- Cynæus angustus *Lec.*
  - depressus *Horn.*
- Metaclisa marginalis *Horn.*
- Uloma longula *Lec.*
- Phaleria rotundata *Lec.*

Phaleria limbata *Horn*.
    debilis *Lec*.
Anemia californica *Horn*.
Platydema subquadratum *Mots*.
    oregonense *Lec*.
Phylethus bifasciatus *Say*.
Hypophloeus substriatus *Lec*.
    opaculus *Lec*.
Apocrypha anthicoides *Esch*.
    dyschirioides *Lec*.
Apocrypha clivinoides *Horn*.
Helops edwardsii *Horn*.
    ovipennis *Csy*.
    rugicollis *Lec*.
    strigicollis *Horn*.
    attenuatus *Lec*.
    bachei *Lec*.
    blaisdelli *Csy*.
    discipula *Csy*.

CISTELIDÆ.

Stenochidus gracilis *Lec*.
    cyanescens *Lec*.
Hymenorus infuscatus *Csy*.
    grandicollis *Champ*.
    fusicornis *Csy*.
    fusculus *Csy*.
    macer *Csy*.
Hymenorus punctatissimus *Lec*.
Mycetochares longipennis *Csy*.
    procera *Csy*.
    pubipennis *Lec*.
Isomira variabilis *Horn*.
    luscitiosa *Csy*.
Cistela opaca *Lec*.

OTHNIIDÆ.

Othnius longicornis *Horn*.

MONOMMIDÆ.

Hyporhagus gilensis *Horn*.

MELANDRYIDÆ.

Carebara longula *Lec*.
Nothus luteus *Horn*.
Lacconotus pinicolus *Horn*.
Mycterus concolor *Lec*.
    quadricollis *Horn*.

PYTHIDÆ.

Cononotus macer *Horn*.
Cononotus sericans *Lec*.

- Mordella scutellaris *Fab.*
  - undescribed species
- Mordellistena vilis *Lec.*
  - comata *Lec.*
  - aspersa *Smith.*
- Mordellistena tosta *Lec.*
  - nubila *Lec.*
  - unicolor *Lec.*
  - many new or unidentified species

ANTHICIDÆ.

- Eurygenius constrictus *Lec.*
- Stereopalpus incanus *Csy.*
  - nimius *Csy.*
  - pruinosus *Lec.*
- Corphyra distinguenda *Horn.*
  - bardii *Horn.*
  - inconspicua *Horn.*
- Formicomus mundus *Lec.*
- Anthicus tenuis *Lec.*
  - pinalicus *Csy.* (?)
  - canonicus *Csy.*
  - bipartitus *Csy.*
  - turgidicollis *Csy.*
  - californicus *Laf.*
  - confinis *Lec.*
  - formicarius *Goeze.*
  - rufulus *Lec.*
  - cribratus *Lec.*
  - hecate *Csy.*
  - luteolus *Lec.*
  - pinguescens *Csy.*
  - ovicollis *Csy.*
  - biguttulus *Lec.*
  - punctulatus *Lec.*
  - seminotatus *Csy.*
  - nanus *Lec.*
- Anthicus obliquus *Csy.*
  - militaris *Csy.*
  - bellulus *Lec.*
  - herifuga *Csy.*
  - maritimus *Lec.*
  - corticalis *Lec.*
  - obesus *Csy.*
  - *albicans Csy.*
  - *parviceps Csy.*
- Tanarthrus salinus *Lec.*
  - alutaceus *Lec.*
- Notoxus spatulifer *Csy.*
  - denudatus *Horn.*
  - debilitans *Csy.*
  - conformis *Lec.*
  - sparsus *Lec.*
  - constrictus *Csy.*
  - robustus *Csy.*
  - alamedæ *Csy.*
  - cavicornis *Lec.*
  - calcaratus *Horn.*
- Mecynotarsus delicatulus *Horn.*
- Xylophilus brunnipennis *Lec.*
  - brunnescens sp. nov.
  - nucleus sp. nov.
  - constrictus sp. nov.

PYROCHROIDÆ.

Pyrochroa californica *Horn.*

MELOIDÆ.

- Cysteodemus armatus *Lec.*
- Meloe barbarus *Lec.*
  - strigulosus *Mann.* (?)
- Nemognatha apicalis *Lec.*
  - lutea *Lec.* (?)
- Nemognatha dubia *Lec.*
  - nigripennis *Lec.*
  - scutellaris *Lec.*
  - two undescribed species
- Gnathium nitidum *Horn.*

Zonitis flavida *Lec.*
    undescribed species
Epicauta alphonsii *Horn.*
    puncticollis *Mann.*
    oblita *Lec.*
    straba *Horn.*
    maculata *Say.*
    sp. nov. near lemniscata *Fab.*
    fallax *Horn.*
    maura *Lec.*
Cantharis melæna *Lec.*
    magister *Horn.*
    vulnerata *Lec.*
    childii *Lec.*
    tenebrosa *Lec.*
    mœrens *Lec.*
    insperata *Horn.*
    occipitalis *Horn.*
Cantharis incommoda *Horn.*
    stygica *Lec.*
    auriculata *Horn.*
    crotchii *Horn.*
    æneipennis *Lec.*
    nitidicollis *Lec.*
    lugens *Lec.*
    compressicornis *Horn.*
Calospasta elegans *Lec.*
    perpulchra *Horn.*
    mirabilis *Horn.*
    mœsta *Horn.*
    nemognathoides *Horn.*
    opaca *Horn.*
    undescribed species
Tegrodera erosa *Lec.*
    race latecincta *Horn.*
Phodaga alticeps *Lec.*

RHIPIPHORIDÆ.

Rhipiphorus flavipennis *Lec.*
    cruentus *Germ.*
Rhipiphorus cruentus var. rufus *Lec.*
Myodites californicus *Lec.*

RHYNCHITIDÆ.

Auletes nasalis *Lec.*
    latifrons *Csy.*
Rhynchites bicolor *Fab.*
Rhynchites aureus *Lec.*
    æratoides *Fall.*
Deporaus glastinus *Lec.*

OTIORHYNCHIDÆ.

Trigonoscuta pilosa *Mots.*
Eupagoderes argentatus *Lec.*
    desertus *Horn.*
Paraptochus sellatus *Boh.*
Stenoptochus inconstans *Csy.*
Thricolepis inornata *Horn.*

CURCULIONIDÆ.

- Sitones sordidus *Lec.*
  - crinitus *Gyll.*
  - nebulosus *Csy.*
  - hispidiceps *Csy.*
  - explicitus *Csy.*
  - undescribed species
- Apion pennsylvanicum *Boh.*
  - hesperum *Fall.*
  - sordidum *Smith.*
  - antennatum *Smith.*
  - œdorhynchum *Lec.*
  - opacicolle *Smith.*
  - troglodytes *Mann.*
  - proclive *Lec.*
  - cribricolle *Lec.*
  - cordatum *Smith.*
  - varicorne *Smith.*
  - ventricosum *Lec.*
  - attenuatum *Smith.*
- Listronotus
  - undescribed species
- Emphyastes fucicola *Mann.*
- Lixus asper *Lec.*
  - perforatus *Lec.*
  - semivittatus *Csy.*
- Dinocleus pilosus *Lec.*
  - jacobinus *Csy.*
  - farctus *Csy.*
  - albovestitus *Csy.*
  - molitor *Lec.*
  - wickhami *Csy.*
- Cleonus inornatus *Lec.*
  - pacificus sp. nov.
  - erysimi sp. nov.
  - basalis *Fall.*
  - lobigerinus *Csy.*
  - vittatus *Kirby.*
  - modestus *Mann.*
  - pleuralis *Lec.*
- Dorytomus inæqualis *Csy.*
  - hystricula *Csy.*
  - hirtus *Lec.*
  - luridus *Mann.*
- Dorytomus rufus *Say.*
- Desmoris constrictus *Say.*
- Smicronyx pusillus *Dietz.*
  - cinereus *Mots.*
  - instabilis *Csy.*
  - defricans *Csy.*
  - nubilus *Dietz.*
  - californicus *Dietz.*
  - obtectus *Lec.*
  - two or three undescribed species
- Synertha imbricata *Csy.*
- Promecotarsus maritimus *Csy.*
- Phyllotrox nubifer *Lec.*
- Endalus limatulus *Gyll.*
  - ovalis *Lec.*
- Stenopelmus rufinasus *Gyll.*
- Bagous californicus *Lec.*
- Phycocœtes testaceus *Lec.*
- Otidocephalus vittatus *Horn.*
- Magdalis cuneiformis *Horn.*
  - lecontei *Horn.*
  - undescribed species
- Macrorhoptus hispidus *Dietz.*
  - estriatus *Lec.*
- Cionistes insolens *Dietz.*
- Anthonomus peninsularis *Dietz.*
  - confusus *Dietz.*
  - sycophanta *Walsh.*
  - apertus sp. nov.
  - albopilosus *Dietz.*
  - æneolus *Dietz.*
  - ater *Lec.*
  - ochreopilosus *Dietz.*
  - pauperculus *Lec.*
  - helianthi sp. nov.
  - ornatulus *Dietz.*
  - figuratus *Dietz.*
  - inermis *Boh.*
  - stolatus sp. nov.
- Epimechus mimicus *Dietz.*
  - soriculus *Dietz.*
  - nevadicus *Dietz.*
  - æmulus sp. nov.

- Elleschus ephippiatus *Say*.
- Orchestes parvicollis *Lec*.
  - puberulus *Boh*.
- Tychius lineellus *Lec*.
  - prolixus *Csy*.
  - setosus *Lec*.
  - species unidentified
- Sibynes fulvus *Lec*.
- Paragoges maculatus *Lec*.
- Rhyssematus pubescens *Horn*.
- Piazurus californicus *Lec*.
- Copturus mammillatus *Lec*.
  - adspersus *Lec*.
  - longulus *Lec*.
  - two undescribed species
- Gyrotus munitus *Csy*.
- Ceutorhynchus subpubescens *Lec*.
  - angulatus *Lec*.
  - disturbatus *Dietz*.
  - obliquus *Lec*.
  - hornii *Dietz*.
  - nodipennis *Dietz*.
  - mutabilis *Dietz*.
- Ceutorhynchus convexicollis *Lec*.
  - albopilosus *Dietz*.
- Cœlogaster zimmermanni *Gyll*.
- Pelenomus cavifrons *Lec*.
- Baris heterodoxa sp. nov.
  - dilatata *Csy*.
  - montana sp. nov.
  - rubripes *Csy*.
  - futilis *Csy*.
- Onychobaris densa *Lec*.
  - depressa *Csy*.
  - austera *Csy*.
  - insidiosa *Csy*.
  - arguta *Csy*.
  - audax *Csy*.
- Trichobaris mucorea *Lec*.
  - compacta *Csy*.
- Limnobaris nasuta *Lec*.
  - seclusa *Csy*.
- Barinus difficilis *Csy*.
- Barilepton falciger *Csy*.
- Balaninus uniformis *Lec*.

CALANDRIDÆ.

- Scyphophorus acupunctatus *Gyll*.
  - robustior *Horn*.
  - yuccæ *Horn*.
- Cactophagus validus *Lec*.
- Rhodobænus tredecimpunctatus *Ill*.
- Sphenophorus simplex *Lec*.
  - vomerinus *Lec*.
- Sphenophorus tardus sp. nov.
- Calandra granaria *Linn*.
  - oryzæ *Linn*.
- Yuccaborus frontalis *Lec*.
- Cossonus crenatus *Horn*.
- Macrorhyncolus protractus *Horn*.
- Elassoptes marinus *Horn*.

Xyleborus cælatus *Eich.*
Xylocleptes cucurbitæ *Lec.*
Tomicus confusus *Lec.*
Micracis hirtella *Lec.*
undescribed species
Scolytus ventralis *Lec.* **(?)**
Hylesinus aspericollis *Lec.*
Phlœosinus punctatus *Lec.*
Chætophlœus hystrix *Lec.*
Carphoborus simplex *Lec.*
Dendroctonus terebrans *Oliv.*
frontalis *Zimm.*
Hylastes macer *Lec.*
longus *Lec.*
nigrinus *Mann.*
Hylurgops subcostulatus *Mann.*

ANTHRIBIDÆ.

Toxotropis approximatus *Lec.*
Brachytarsus
three species

Notes on Distribution of Species.

CICINDELIDÆ.

Omus.—All our species of this genus occur in California, the headwaters of Kings and Tule Rivers in the Sierras *(lævis)*, Fort Tejon *(californicus)*, and Port Harford along the coast *(lecontei)* being the southernmost recorded limits. Two species—*dejeani* and *audouni*—extend their range northward into Oregon and Washington. The species occur in hilly and mountainous regions only, so far as known.

Tetracha.—*T. carolina* occurs at Yuma, especially along the margins of pools, where they conceal themselves in the cracks or fissures of the drying mud banks.

Cicindela.—The species, with the exception of *12-guttata* and its varieties, are more or less local and only found near water, none occurring along paths or dry, sandy roads, as is true of several eastern species. *C. latesignata* and *C. sigmoidea* are confined to the ocean beaches, both being very abundant at San Diego in midsummer: *hirticollis* occurs on various beaches and also at Yuma:

gabbii is infrequent on the mud of salt marshes at San Diego and Wilmington in August and September, and is rarely taken on the ocean beach; Long Beach, August (Daggett): *senilis*, near San Diego, in damp places away from the ocean (Dunn): *vulgaris* and its variety *obliquata*, at San Luis Rey (Dunn); the latter also on the borders of the Big Laguna, Temecula Valley (Blaisdell): *vibex*, on the ocean beach at Oceanside (Blaisdell) and near San Bernardino (Wright): *12-guttata* and varieties, widely diffused along fresh water, Feb. to Oct. The most common form is that which Le Conte called *oregona;* these graduate into *guttifera* as Arizona is approached; typical *12-guttata* is seldom taken. The various forms are so perfectly connected that it seems scarcely worth while to continue the three names. The impression is quite general among coleopterists that *12-guttata* is not a variety of *repanda*, and it seems quite certain to me that it must be given full specific standing.

C. pusilla occurs in Owen's Valley: *tenuisignata*, Palm Springs and Colorado River: *sperata*, plentiful along the Colorado at Yuma in July: *lemniscata*, between San Diego and the Mexican boundary (fide Fuchs): *prætextata*, San Diego County (Fuchs). *C. hæmorrhagica* and *C. pacifica* are found along fresh-water streams at San [redacted]

CARABIDÆ.

Omophron.—*O. dentatum* is quite common in many localities along the sandy or gravelly margins of streams, Feb.-Aug. This species, together with *Bembidium*, *Tachys* and other littoral forms, is easily secured by "washing" the banks. *O. ovale* Horn and *concinnum*, *solidum* and *gemma* Csy. are northern.

Trachypachys.—*T. inermis* and *T. gibbsii* occur both in the northern Sierras and in the Coast Range. I have taken the latter at Lake Tahoe in July, and Mr. Daggett has found it at an elevation of 6,000 feet on the Kern River.

Cychrus.—*C. obliquus*, Los Angeles and San Diego; not common: *striatus*, Santa Barbara, Pomona, Pasadena; scarce along streams, where they conceal themselves under rocks and logs during the day: *mimus*, somewhat more common than the last and occurs in same situations; best obtained by trapping with fresh meat: *punctatus*, San Diego County, common at Fort Tejon (Le Conte): *subtilis*, Los Angeles, very rare; not seen alive by the writer; the example in my collection is from Tulare County; it is also reported from Mariposa.

The following species also occur in the State: *angusticollis*, northern; *cordatus*, *cristatus*, *interruptus*, *ventricosus*, *striatopunctatus*, region about San Francisco; *oreophilus*, middle Sierras; *fuchsianus*, northern; *dissolutus*, "Cal." In a recent review of the subgenus *Brennus*, Casey has added the following names: *basalis*, *duplicatus*, *incipiens*, *decipiens*, *symmetricus*, *gentilis*, *strictus*, *convergens*, *sculptipennis*, *porcatus*, *sinuatus*, *politus*, *corpulentus*, *compositus*, *longipes*, *gravidus*, and *catenulatus*. The last two are said to be from Southern California.

Judging from the description, *gravidus* is not separable from *punctatus*, and *catenulatus* is without much doubt *mimus*.

Carabus.—*C. tædatus* or variety occurs at Lake Tahoe and north.

Calosoma.—*C. angulatum*, "So. Cal."; not seen by the writer: *prominens*, Riverside, April; San Bernardino; Pasadena, Sept.; southern Mojave region (Horn, "The Coleoptera of Baja California")*: *peregrinator*, "So. Cal." (Horn, l. c.): *parviceps*, San Diego County (Fuchs): *triste*, San Diego County: *semilæve*, Redondo, February; Pomona, April-May; frequently common, roads and fields in spring and early summer: *simplex*, Los Angeles County, not common: *cancellatum*, Los Angeles; Redondo Beach, one example, March; Santa Monica, Santa Barbara: *latipenne*, Antelope Valley: *subæneum* occurs about Fresno: *discors* and *luxatum* var. in the north.

Elaphrus.—*E. viridis* is described from California without definite locality. Specimens of *riparius* from the Kern River, near Bakersfield, are in my collection, and it is possible that this may be found along some of the small streams on the desert side of the mountains. Casey describes *politus* from San Francisco.

Loricera.—Specimens of *L. californica* have been taken

N. rathvoni occurs near Sacramento: *ingens* and *ovipennis*, in the "Sierra Nevada," probably middle or northern: *metallica*, in the extreme north.

Metrius.—*M. contractus* is said by Horn to occur in the Coast Range south of Tejon. *Promecognathus lævissimus* is also said to occur in the same places as the preceding. I have never met either of these species in Southern California, and it is probable that they will be found only along the northern limits of the territory we are considering.

Scarites.—*S. subterraneus*, Riverside, April; Yuma, July.

Dyschirius.—*D. tridentatus*, *D. basalis* and *D. gibbipennis* are common near water almost everywhere west of the mountains: *patruelis*, San Diego (Le Conte): *æneus* and *analis* are common along the Colorado River: *marinus*, common, and found only on the sea beaches: *truncatus* (?), rather rare; Pasadena, May; Lake Tahoe, July: *unipunctatus*, not rare at Pomona, Riverside and San Bernardino: *aratus* and *terminatus* are both recorded from California, the former was described from the Gila River and is common in southwestern Arizona; it may be expected to occur along the Colorado: *terminatus* occurs from New York to Kansas and its occurrence in California may be looked upon with suspicion: *consobrinus* is found at San Francisco and in the middle Sierras: *obesus*, on the northern beaches: *æneolus* must be northern if its occurrence in the State is correctly reported.

Clivina.—*C. dentipes* was found along the Colorado River at Needles by Wickham, and by myself at Yuma: *punctulata* appears to be very scarce; a single example only at Pomona, June.

Schizogenius.—*S. crenulatus* and *S. pluripunctatus*, Colorado River: *seticollis*, common in many localities west of the mountains: *depressus*, generally distributed both east and west of the mountains: *litigiosus* occurs at San Francisco and north.

Bembidium.—Very numerously represented, more than one-fourth of all our described species occurring in Southern California. *B. transversale* (of this I believe *lugubre* to be only a variety), *striola*, *californicum*, *lucidum*, *variegatum*, *timidum*, *versicolor* and *iridescens* are widely distributed within our area and are generally common: *nitidum* has occurred at Riverside, March, and Pomona, May, but is rather rare: *erasum* occurs in the Sierras from 5,000 feet upward; the mentum tooth is not bifid in our specimens: *longulum*, *brevistriatum*, *consanguineum* and *acutifrons* are also found in the higher mountain cañons or valleys between the ranges: *carinatum*, banks of Colorado River: *bifossulatum*, Riverside, June, and near San Diego: *insulatum*, Riverside and Pomona, June; one example on ocean beach at Santa Barbara, August; both these species prefer the muddy banks of reservoirs or ponds in the low country, rarely or never occurring along the small streams of the mountain cañons or foot-hills: *recticolle*, Pasadena, Pomona;

common: *grandicolle*, San Diego, Riverside; rare: *vile*, San Diego and Los Angeles, August; rare: *horni*, two examples; Riverside, June; Sierras, July: *bifasciatum*, often abundant along mountain streams: *dubitans*, Pomona, Riverside, Pasadena; March to June: *trechiforme*, Santa Monica, February; Ojai Valley, March; rather scarce: *laticeps*, San Diego; very few specimens known: *cautum* (from which *connivens* is not separable) is widely diffused and very common: *henshawi* and *scudderi* are recorded from Tehachapi, the northern limit of our area.

The following species occur in the middle or northern portions of the State: *littorale*, *lorquini*, *sculpturatum*, *quadrulum*, *planatum*, *planiusculum*, *complanulum*, *funereum*, *nigrocœruleum*, *incertum*, *nebraskense*, *nevadense*, *rickseckeri*, *approximatum*, *dentellum*, *variolosum*, *mormon*, *obtusangulum*, *wickhami*, *anguliferum*, *oblongulum*, *tigrinum*,[*] *assimile*, *spectabile*. Hayward cites *muscicola* with an implied doubt: *sordidulum* was described by Chaudoir from California, but is unrecognized.

Anillus.—*A. explanatus* has been found in Alabaster Cave, El Dorado County: *debilis*, under stones at San Jose.

Tachys.—*T. vittiger* and *T. virgo* are found only near the seacoast; both have been found running on salt mud at Santa Barbara and Redondo, while *vittiger* has also been found at San Diego and near the beach on Catalina Island: *mordax*, Colorado River: *corax*, in same locality and more frequent, also at Pomona: *vorax*, rare at Pomona and Riverside: *edax*, Ojai Valley, March: *nanus*, common under bark of fallen trees in the mountains:

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[*] Specimens of *B. tigrinum* have been recently taken by me on the sandy margin of the salt flats back of the ocean beach at Santa Barbara (August). It has previously been known to me only from Alameda, probably occurring in similar situations.

anthrax and *audax*, common nearly everywhere along streams, the latter being our most common species: *rapax*, not rare at Yuma in July. Two examples of *rufotestaceus* have occurred at Pomona. I have seen a specimen of *flavicauda* from the northern part of the State. *T. falli* occurs in the middle and northern Sierras (Lake Tahoe and Siskiyou).

Pericompsus.—A few examples of *P. sellatus* taken along the banks of the Colorado River at Yuma in July. Mr. Hayward writes me that *Pericompsus* will be merged into *Tachys* in his forthcoming revision.

Patrobus.—*P. californicus* is northern.

Pogonus.—*P. planatus* is reported from "Cal." (Horn), probably from the desert region of the southeast.

Trechus.—*T. barbaræ* occurs at Santa Barbara: *pomonæ*, rare, at Pomona and Pasadena in foot-hill cañons; October, January, March. *T. chalybeus* and *T. ovipennis* are both recorded from California; the former is northern, the latter middle and northern.

Pterostichus.—The first division of the genus, viz., those species without dorsal puncture on the elytra, is well represented, and several are yet undescribed. *P.*

River at Yuma: *hornii* and *splendidulus* are also reported from Yuma, but I have not seen specimens: *texanus** is reported from Needles by Wickham: *lustrans* and *occidentalis* are rather widely diffused, the former being common nearly everywhere, the latter more local and scarcer. I have seen *californicus* from "So. Cal.", but it is doubtless from the northern limits of this region. Aside from *menetriesii*, *isabellæ*, *lætulus*, and an undetermined species are all that have thus far been taken on the islands off the coast. Of the other Californian species, *serripes* is from the Yosemite region; *tarsalis*, *planctus* and *protractus* are all fairly common at Lake Tahoe: *angustus*, middle coast region; *inanus*, middle and northern Sierras: *validus*, *brunneus*, *morionides*, *caligans* and *vitreus* are all northern. I have been unable to determine exact locality for *castanipes*; it is probably central or northern.

Amara.—*A. jacobinæ* has occurred at Riverside, June, but is more common in the immediate neighborhood of the coast—San Diego, Santa Monica, Redondo, etc.: *scitula*, rather uncommon, Pomona, September-December; San Bernardino Mountains, July: *longula*, one example only, Santa Monica, February: *insignis*, widely distributed from islands and beaches to mountains, but not very common: *insularis*, abundant in spring and early summer on all the islands: *impuncticollis*, Pomona and Pasadena; a few specimens seen: *interstitialis*, Sierras, not frequent: *californica*, abundant everywhere: *remotestriata*, mountains only, not rare: *gibba*, "So. Cal." (Horn); not seen by writer: *aurata*, not rare in early spring, less frequent later in the season; widely diffused. *A. farcta* and *A. robustula* are recorded from "Cal." without definite locality: *rectangula* and *imitatrix* are northern, the latter occurring also on the Farallon Islands (Fuchs): *stupida* is described from Sacramento; it is very near *jacobinæ: conflata* was described from San Francisco. There is a specimen of *latior* in the Le Conte Collection bearing a gold disk, Le Conte's customary California label.

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* Probably an incorrect identification of *T. subcordatus*.

Badister.—*B. anthracinus*, a single specimen from Los Angeles County (Van Dyke): *ferrugineus*, "Alaska-Cal."; doubtless confined to the northern part of the State.

Calathus.—The name *C. ruficollis* is generally used for our very abundant species, and it is not quite plain how it is to be separated from *obscurus*, which, according to description, is a "So. Cal." species.* Le Conte described *quadricollis* from San Francisco, and *behrensii* is from "Cal." It is impossible to separate these four species by Le Conte's table, and it is more than likely that all the names apply to a single moderately variable species.

Pristonychus.—*P. complanatus*, San Bernardino, about stables in December; San Diego, uncommon.

Platynus.—*P. agilis*, found at St. Isabel, San Diego County (Le Conte); I have never taken it: *simplex*, I have taken at Santa Barbara. In the vicinity of Los Angeles, *brunneomarginatus* and *funebris* are to be found along the margin of natural water courses, *californicus* and *variolatus* on the shores of permanent ponds or reservoirs; the latter species is also found along irrigating ditches and in damp situations on cultivated land: *maculicollis* alone occurs about houses, where it is generally common under any object that will afford shelter during the winter and spring. I have occasionally seen great numbers on the wing in early spring evenings.

In addition to the above named species, the following are reported from California, and with the possible exception of *larvalis* are probably all from the central and northern portions of the State: *larvalis, jejunus, ovipennis, bicolor, ferruginosus, quadratus, cupripennis, sulcatus, striatus*. *P. punctiformis* is found along the Gila not far from the Colorado and will probably occur at Yuma.

Perigona.—*P. nigriceps*, Pasadena, at electric light, September; one specimen (Fényes).

Lachnophorus.—*L. elegantulus* is abundant along the sandy margins of streams.

Euphorticus.—*E. occidentalis* is of similar habits to the preceding, but quite rare; Riverside, late in May.

Galerita.—*G. lecontei*, not frequent; Riverside, May and June, at electric lights.

Zuphium.—*Z. longicolle*, north of the central portion of the State (Yuba County).

Diaphorus.—*D. tenuicollis*, Sacramento and San Jose.

Thalpius.—*T. hornii*, not rare along the banks of the Colorado: *rufulus* is reported from Southern California (Horn); it was described from San Jose.

Ega.—*E. lætula,* found at East Bridge, on the Arizona side of the Colorado, by Mr. Wickham, and without a doubt occurs also on the California side; found also at Yuma.

Tetragonodera.—*T. fasciata,* margin of Colorado River; Yuma, July: *pallidus,* one specimen, taken under dried remains of *Opuntia,* Pomona, May; others under boards at Palm Springs in April; a very active insect and everywhere rare; so far as observed, it does not seem to share the littoral habits of its congeners.

Lebia.—*L. cyanipennis,* not rare: *ruficollis,* much less frequent; Riverside, April; Redondo, March: *viridis,* quite common in numerous localities; generally smaller than Eastern specimens: *furcata,* one example, Pomona, July: *guttula,* usually rare; occasionally found in small colonies under the loose bark of Eucalyptus in December and January: *bilineata,* San Bernardino Mountains, July; rare.

Dromius.—*D. piceus,* not rare under bark of live-oak in foot-hills near Pomona in February and April.

Apristus.—*A. laticollis,* rather common on banks of streams or ditches, and occasionally running on garden walks, usually in April and May.

Philophuga.—*P. castanea*, one example, Pomona, May, from between the leaves of decaying yucca: *P. amœna*, middle California.

Plochionus.—*P. timidus* and *P. pallens* are in the Horn Collection, from "Cal.," without more definite locality.

Pinacodera.—*P. punctigera*, occurs at Yuma; other species are found in the Peninsula.

Cymindis.—*C. cribricollis*, San Diego County (Fuchs): *californica* and *Apenes limbata* were described by Horn ("Coleoptera of Baja California," Supp. I)* as from San Luis Obispo. The occurrence of these genera in maritime California seems so surprising that one might almost suspect some confusion of localities. I have not yet seen specimens.

Brachynus.—The species are as elsewhere very indefinite. *B. lateralis* is readily known by the pale elytral margin; it is rare west of the mountains, but common along the Colorado River. One or two of the other species are abundant near water. *B. fidelis* is included on the authority of Mr. Fuchs.

Chlænius.—*C. ruficauda*, common along the Colorado from Needles to Yuma: *viridifrons*, widely distributed throughout the southern part of the State, but generally uncommon: *cursor*, Southern California (Horn); doubtless from the desert regions of the southeast: *cumatilis*, common along streams in foot-hill cañons: *leucoscelis*, occurs only along the Colorado, where it is not rare: *obsoletus*, not rare both east and west of the mountains: *variabilipes*, not common, though generally diffused: *glaucus*, Yuma, March (Daggett): *tricolor*, rather common everywhere: *harpalinus*, very scarce, Los Angeles County (Van Dyke): *simillimus* occurs at San Francisco (Horn): *pennsylvanicus* in the north: *sericeus* is reported from the State without definite locality.

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*Proc. Cal. Acad. Sci., 2nd Ser., Vol. V, 1895, pp. 231, 232.

Brachylobus.—*B. caurinus* is northern (Yreka, Horn).

Oodes.—*O. elegans*, Colorado River, March (Daggett).

Agonoderus.—*A. lineola* moderately, and *A. pallipes* exceedingly common in many localities; both are frequently attracted in numbers to lights in early summer.

Discoderus.—A single example of *D. amœnus* was found under a stone near Palm Springs on the desert side of the mountains.

Harpalus.—This genus is not very well represented in California and only one species is known to me from the southern part of the State; this is superficially very much like *ventralis* and may be that species; specimens were taken in Bear Valley (elevation 6,000 to 7,000 feet) by Mr. Daggett. I have taken *caliginosus* at Sacramento, *cautus* at San Francisco, *somnulentus* at Lake Tahoe, and have specimens referred to *carbonatus* from the middle Sierras. There are two other apparently undescribed species in my collection from still further north.

Tachycellus.—Two forms are at present included under the name *T. nitidus.* The larger, pale form is more common near the coast, though I have seen specimens from as far inland as San Bernardino. The smaller, dark form is in my opinion specifically distinct; it is widely dispersed. There is a still smaller piceous form, the thorax with obtuse hind angles, specimens of which have been seen from Pasadena and from the southern Sierras. The proper elucidation of the species requires study.

Anisodactylus.—*A. dilatatus* is rather uncommon or at least local; I have taken it in early spring under stones in a dry hillside ravine near Pomona. *A. piceus, semipunctatus, consobrinus* and *californicus* are all widely distributed and more or less common. *A. amaroides* is rare in our region; I have specimens taken at Riverside and in the San Bernardino Mountains. Of the other species recorded from California, *strenuus* occurs at Fort Tejon; *obtusus* at San Jose; *pilosus* and *immanis* in the San Joaquin Valley; *nivalis* at Santa Rosa and north; *pitychrous* in the middle Sierras; *porosus* in the northeastern desert regions.

Anisotarsus.—*A. flebilis* or a closely allied species has been taken sparingly at Pomona.

Pseudomorphus.—*P. cronkhitei* occurs in Owens Valley; *behrensi* in the San Joaquin Valley.

AMPHIZOIDÆ.

Amphizoa.—Four examples of *A. insolens* were taken in a mountain stream near Pomona in September.

HALIPLIDÆ.

Haliplus.—*H. concolor* is rare at Pomona and Riverside, April and May; described from the Colorado River.

Cnemidotus.—*C. callosus* and *C. simplex* are both common and are to be found at all seasons. I have taken both most frequently in algæ occurring on stagnant pools in August and September.

DYTISCIDÆ.

Laccophilus.—*L. decipiens*, everywhere plentiful: *terminalis* is moderately common, and *4-lineatus* less so, at Yuma: *mexicanus* has occurred twice at Pomona: *fasciatus* is said by Crotch to occur in California, but I have not seen specimens.

Hydrovatus.—To *H. brevipes* is referred a single example taken at Long Beach.

Desmopachria.—*D. latissima*, San Diego, Santa Barbara; not common.

Bidessus.—*B. cinctellus*, "So. Cal." (*teste* Horn), probably from the desert region, as it is known to be a common species in adjacent parts of Arizona: *pictodes*, generally scarce; I have seen specimens from Ventura only; an allied form is not rare in the San Bernardino Mountains: *affinis*, occurs commonly in most localities; the form taken west of the mountains is the dark variety to which Le Conte gave the name *obscurellus*; specimens from east of the mountains are more or less distinctly

Hygrotus.—*H. hydropicus*, rather rare, Pomona and San Diego.

Cœlambus.—*C. medialis*, rather common everywhere: *fraternus*, Colorado River: *pedalis*, not common, Riverside and Pomona, May and June: *lutescens* is quite common in middle California,—San Francisco, San Jose, Sacramento: *impressopunctatus*, one specimen, Lake Tahoe (Fényes).

Deronectes.—*D. griseostriatus*, not common, Redondo, December and February: *striatellus*, exceedingly abundant everywhere.

Hydroporus.—*H. addendus*, rare at Pomona and Ojai Valley, more common a little further north: *fortis*, rare, San Diego; *subpubescens*, not common, though widely diffused: *axillaris*, southeastern region, probably Yuma: *vilis* and *latebrosus*, common in most localities. The following species are also reported from the State and some may possibly occur within our limits, though the species of the genus are as a rule more northern in habitat: *eximius*, *rivalis* (=*sanmarki* Sahlb, according to Fauvel), *terminalis* and *hardyi*. Mr. Fuchs has a record of *H. funereus* from San Diego. This is quite likely correct, but needs verification.

Coptotomus.—*C. interrogatus* is common at Needles in August (Wickham).

Hydrotrupes.—*H. palpalis* is one of our rarest species, occurring in the mountain streams of the southern Sierras.

Ilybiosoma.—*I. regularis* is plentiful everywhere.

Agabinus.—*A. glabrellus*, rather scarce as a rule, but once found in some numbers in a small spring on Catalina Island.

Agabus.—*A. lugens*, abundant everywhere· *lineellus*, very rare, Pomona, April and May: *morosus*, Pomona, San Diego; not common: *obsoletus*, San Diego (Le Conte); *lecontei*, rather common, various localities. The following species are found farther north: *intersectus*, *brevicollis*, *confertus*, *strigulosus*, *tristis* (Lake Tahoe), *suturalis*, *erichsoni*.

Rhantus.—*R. binotatus*, common generally: *anisonychus*, much rarer, Pomona: *flavogriseus* and *sinuatus* are reported from the State, but I have not seen specimens from the south.

Colymbetes.—*C. strigatus*, rare; a single specimen taken at San Bernardino in April: *sculptilis* is recorded from the State by Crotch: *seminiger* occurs in the northeast.

Eretes.—*E. sticticus* is a cosmopolitan species which has occurred once at Soldiers' Home (Van Dyke).

Hydaticus.—*H. stagnalis* is recorded from "Cal." (Horn, "The Coleoptera of Baja California"*).

Dytiscus.—*D. marginicollis*, scarce; several specimens taken by Mr. Daggett in Bear Valley, elevation 7,000 feet, June; one example taken by myself at Santa Monica.

Thermonectes.—*T. basilaris* var. *intermedius*, one example, Pomona, September: *marmoratus*, near San

Gyrinus.—*G. plicifer* occurs in the small streams of the mountains and foot-hills, while *consobrinus* generally prefers larger and more permanent waters; the former is not rare about San Francisco, more especially in the small streams of the redwood region, a few miles north of the Bay; the latter extends its range into Oregon. I have seen hundreds of *consobrinus* about the electric lights at Riverside, in May. Le Conte mentions having two examples of *affinis* from middle California, and I have a species of doubtful identity from the middle Sierras.

Gyretes.—*G. sinuatus*, occurs at Yuma (Le Conte).

HYDROPHILIDÆ.

Helophorus.—*H. obscurus*, common and widely diffused: species doubtful, one example, Ventura, March: *fortis*, San Francisco (Le Conte): *angustulus*, northern.

Hydrochus.—Undescribed species, Ojai Valley, March; San Bernardino Mountains, July; rare: *variolatus*, San Diego (Le Conte): *vagus*, Colorado River.

Ochthebius.—The species occur sometimes in great numbers in the mud or silt or under stones in the shallow water of the margins of streams or pools, where any agitation of the bottom brings them to the surface, upon which they float and are easily taken. *O. rectus* is our commonest species and occurs nearly everywhere; I have taken it plentifully in muddy irrigating ditches at Riverside, in clear streams, and at San Diego on a salt marsh which is covered by tide-water: *interruptus*, Riverside, San Diego, Redondo; common at the latter place, living in algæ in a small lake much salter than the ocean: *discretus*, widely diffused and moderately common: *puncticollis*, rare, San Bernardino Mountains, Ojai Valley: *sculptus*, rare, Ventura: *costipennis*, one example, Ventura, March: *holmbergi*, Santa Monica and San Diego, not very common: *lineatus*, abundant at Yuma, July: *nitidus*, Yuma (Le Conte). Dr. Horn records *lævipennis* from Fort Tejon, and I have taken *cribricollis* at San Francisco and Lake Tahoe.

Hydræna.—*H. pennsylvanica*, common everywhere in same situations as *Ochthebius*.

Hydrophilus.—*H. triangularis*, not rare, comes quite often to electric lights: *insularis*, said by Horn ("The Coleoptera of Baja California")* to occur in Southern California.

Tropisternus.—All the species common and generally distributed except *salsamentus*, which has occurred only in the Redondo salt lake, April to June, and in salt pools at Santa Barbara, August.

Hydrocharis.—*H. glaucus*, three examples taken by Mr. F. D. Twogood in a watering trough at a lumber camp in the San Bernardino Mountains, elevation 5,000 feet, September; found also on Santa Cruz and Santa Rosa islands, but everywhere rare; and by Dr. Blaisdell in Calaveras Mountains, Mokelumne Hill and on Mt. Diablo (Fuchs): *obtusatus*, one example in mountains near Pomona, elevation 4,000 feet, August: *rickseckeri* occurs near Santa Rosa (Ricksecker).

Limnebius.—*L. piceus*, common enough when found, but inclined to be local; I have found it in numbers in the streams of the foot-hills near Pomona and Pasadena; *politus*, *alutaceus* and *congener* are names given by Casey to forms occurring from San Francisco north; they are, I think, based merely on local or individual and sexual variations of *piceus*.

Laccobius.—*L. ellipticus* is extremely abundant everywhere.

Philhydrus.—*P. carinatus* and *P. nebulosus* are common and widely diffused: *diffusus*, not rare in the Redondo salt lake, also in salt marsh at Santa Barbara: *cuspidatus* and *hamiltoni* are recorded from the northern part of the State. Specimens taken by myself at Sacramento are by their color to be referred to *hamiltoni;* this difference, however, is of little consequence, and they are structurally not materially different from *diffusus* of Southern California. *P. californicus* is from an unrecorded part of the State, "probably northern": *conjunctus* occurs at Lake Tahoe.

Helochares.—*H. normatus* is found in most localities, but nowhere very common.

Cymbiodyta.—*C. punctatostriata*, found only in mountain streams: *dorsalis*, common and generally distributed: *imbellis* occurs from Fort Tejon north, and is not rare in the neighborhood of San Francisco.

Hydrobius.—*H. fuscipes*, not common, Pomona, Riverside, San Bernardino: *latus*, extreme north: *scabrosus*, San Francisco and north.

Creniphilus.—*C. subcupreus*, not very frequent; Pomona, San Bernardino Mountains, Yuma: *elegans*,* not common, in the salt lake at Redondo: *rufiventris*, rare at low altitudes, but more plentiful in the higher parts of the Sierras: *infuscatus*, common: *dissimilis*, San Francisco and north.

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*Specimens of this species recently received from Mr. Schwarz were taken by the late Henry G. Hubbard in salt springs at Salton on the Colorado Desert.

Dactylosternum.—*D. cacti*, one example, Los Angeles County (Van Dyke); occurs abundantly in decomposing cactus (*Cereus*) in Arizona, but is thus far rare in Southern California.

Cercyon.—*C. fimbriatus*, everywhere abundant along the seashore in decomposing seaweed: *luniger*, much less frequent in same situations, and on Catalina Island, where *fimbriatus* has not yet been found: *fulvipennis*, common in excrementitious matter: *lugubris*, not rare, about the roots of grass in marshy places, and in decaying vegetable matter: *nigriceps*, rare, San Diego, Pomona.

C. depressus, *quisquilius*, *lateralis*, *tristis* and *navicularis* are quoted from California in Horn's Revision.

Megasternum.—*M. posticatum*, rather common in decomposing vegetable matter, especially along the mountain streams.

SILPHIDÆ.

Necrophorus.—*N. marginatus*, rare; one specimen taken at Riverside, June: *guttula*, numerous on San Clemente Island, May and June, rather scarce on the

Agyrtes.—One example of *longulus* taken at Pomona under live-oak chips, February 15, 1896; one example also taken by Dr. Fényes at Pasadena, January, 1898.

Sphærites.—*S. glabratus* is northern.

Pinodytes.—One dead and mutilated specimen of *cryptophagoides* (?) found with ants at Pasadena (Fényes).

Platycholeus.—Several specimens of *leptinoides* were taken by me in very rotten wood at Lake Tahoe, July; the species is termitophilous (Koebele, Hubbard, Fényes).

Choleva.—*C. basillaris* from middle and northern part of State.

Ptomaphagus.—*P. consobrinus*, Pomona, San Bernardino Mountains, uncommon; one specimen found at Pomona with ants in March: *californicus*, "San Diego northward" (Horn): *pusio*, northern: *fisus*, Owens Valley.

Colon.—*C. clavatum* and *C. inerme* are both northern.

Triarthron.—*T. lecontei*, "high Sierras east of Visalia."

Hydnobius.—*H. latidens*, one example, so referred by Dr. Horn, Ojai Valley, March: *longulus*, northern.

Anisotoma.—Specimens of this and the preceding genus are rare, and are most often taken on the wing an hour or two before sunset on warm days in early spring: *paludicola* has thus occurred at Pomona and Pasadena, January, February: *obsoleta* (?), Ojai Valley, March: *humeralis*, one example taken by Dr. Fényes in leaves beneath chopped meat which had been placed as a bait for *Cychrus*, Pasadena, January: *curvata* and *collaris* are northern: *difficilis* is found in Owens Valley.

Liodes.—One specimen of *confusa* was found at Lake Tahoe (Fényes).

Cyrtusa.—A single specimen of *picipennis* was taken by myself in the San Bernardino Mountains, August.

Agathidium.— *A. revolvens*, rare, San Bernardino Mountains, July: *concinnum*, Pomona, May, not common, more frequent farther north: *virile*, found rarely at Pomona and Riverside in early spring: *pulchrum*, taken on decaying mushrooms at Pomona, February: *californicum* and *sexstriatum* occur in the middle and northern parts of the State.

Clambus.—One example of a species near *seminulum*, but smaller; Pomona, April.

SCYDMÆNIDÆ.

This family is poorly represented in California, only seventeen species being known from the entire State, and of these but six have been found in Southern California; moreover all of these six are of greater or less rarity, a state of affairs surely not due entirely to the small size of the specimens or lack of proper investigation.

Connophron.—*C. occidens* and *C. digressum* are represented, the first by a single specimen taken at or near San Bernardino by Mr. W. G. Wright, and now in the collection of Captain Casey, the latter by three specimens taken by myself about the roots of grass in a the western border of the Colorado desert, in April. Captain Casey writes me that the type which was sent to him with other specimens for study has been lost. The remaining Californian species with their localities are as follows: *Lophioderus gracilis*, San Jose; *L. myops*, San Francisco; *Drastophus lævicollis*, San Francisco; *Scydmænus sparsus*, San Jose; *S. pacificus*, San Francisco and north; *S. fuchsi*, San Francisco; *S. californicus*, northern; *S. catalinus angustus*, San Jose; *Cephennium anophthalmicum*, San Francisco; *Veraphis impressa*, Lake Tahoe; *Scydmænus ovithorax* Bndl., Santa Clara County. According to Casey's recent revision, the last-named species would not be a true *Scydmænus*, and would perhaps require the erection of a new genus for its reception.

PSELAPHIDÆ.

Adranes.—An undescribed species found by Mr. Hubbard in a colony of *Lasius rubripes* at Lake Tahoe.

Articerus fuchsii var. **californicus.**—Occurs at Los Angeles in March (Fuchs); specimens were taken near Los Angeles by Mr. Koebele, in the nests of *Cremastogaster lineolata.*

Biotus.—*B. formicarius*, found living in the nests of a pale brown ant, Los Angeles (Casey).

Sognorus.—*S. pulvereus*, San Jose (Le Conte).

Ctenisis.—Several specimens of *dispar* were taken at an electric light, Pasadena, April (Fényes).

Tyrus.—*T. corticinus* is not uncommon under bark of fallen conifers at Lake Tahoe.

Valda.—*V. frontalis*, Siskiyou County (Casey).

Tychus.—A single example of the tiny species *T. tenellus* was taken on the wing at Pomona in January: *hexagonus*, three examples also taken flying, on a warm day in March, in the Ojai Valley; and six examples taken in like manner by Dr. Fényes at Pasadena in February: *puberulus* occurs at San Jose (Le Conte): *sonomæ*, Mendocino County.

Pselaptrichus.—*P. tuberculipalpus* was taken in the neighborhood of San Francisco in some numbers by Mr. Fuchs.

Scalenarthrus.—*S. hornii* was found at Needles, on the Colorado River, by Mr. Wickham, and by myself further down the river at Yuma, in July, under vegetable debris accumulating in damp situations along the bank of the stream.

Decarthron.—*D. brendeli*, Riverside and Pomona, April, in damp places near streams.

Pselaptus.—*P. belfragei* is described from Texas, but is said to occur as far west as Yuma (Casey).

Reichenbachia.—*R. deformata* and *R. tumidicornis* are both easily obtained in numbers by sifting along the margins of streams and in moist places nearly everycircumstances. The following species are also Californian: *informis*, *fundata*, *tumorosa*, and *fusticornis* from the north; *compar* and *taphrocera* from the middle region; and *nevadensis* from western Nevada and the adjacent parts of California.

Bryaxis.—*B. foveata*, Yuma, San Diego, Riverside, Pasadena; not common: *loripes*, Southern California (Casey).

Batrisus.—*B. zephyrinus*, *B. monticola* and *B. cicatricosus* are from the middle Sierras: *occiduus* and *denticauda* from the north: *pygidialis* is described from "Cal."

Rhexidius.—*R. granolusus* and *R. asperulus* both occur in the vicinity of San Francisco.

Oropus.—Two examples of a species near, if not identical with, *abbreviatus*; Pasadena, March, by sifting (Fényes). The other species, *striatus*, *convexus*, *montanus*, *interruptus* and *cavicauda*, are all from the middle or northern parts of the State.

Morius.—*M. occidens*, Santa Cruz County (Casey).

Sagola.—*S. isabellæ*, not rare in moist situations, especially along the small streams of the foot-hill cañons: *grandiceps*, *rubida* and *longicollis* are from the middle, and *cavifrons*, *corticina* and *subsimilis* from the northern portions of the State.

Euplectus.—*E. orbiceps*, Los Angeles County (Casey): *californicus*, not common, Pomona, Pasadena, Ojai Valley; by sifting; March to June.

Actium.—*A. californicum* occurs in same situations as the preceding, and in about equal numbers: *candidum*, *marinicum* and *brevipenne* are described from middle California, and *politum*, *robustulum*, *testaceum* and *pacificum* from farther north.

STAPHYLINIDÆ.

The members of the Aleocharini are very numerous, but for the most part unstudied, and are consequently much neglected by most collectors.

Falagria.—*F. læviuscula* is very common along the margin of streams in the foot-hills: an undescribed species occurred in the San Bernardino Mountains (elevation 5,000 feet): *cavipennis* was described by Le Conte from San Pedro: *occidua* and *laticollis* are described from a little south of San Francisco (Santa Clara County).

Echidnoglossa.—Several species occur in the wet moss in mountain cañons; some of these are probably the same as some of the following species described by Casey from the middle and northern portions of the State, viz., *valida, eximia, brevicornis, gracilis, grandicollis.*

Hoplandria.—A species referred with some doubt to this genus was taken in the Ojai Valley in March.

Pontomalota.—*P. opaca* is usually plentiful on the sands of ocean beaches: *californica* and *nigriceps* are closely allied forms found at San Francisco and Santa Cruz.

Lomechusa.—*L. angusta* has occurred twice, the first specimen having been found with ants in the interior of an oak gall at Pasadena (Fényes), and the other under rubbish at Redondo beach (Daggett): *montana* was originally described from a specimen found under a stone at Truckee, near the summit of the middle Sierras; it has since been taken by Dr. Fényes under bark with ants, at Lake Tahoe, and farther north at Castle Crag in like manner.

Tarphiota.—*T. pallidipes* and *T. fucicola* are common on sea beaches.

Tachyusa.—Four species occur more or less commonly along streams, where they may be taken in numbers by "washing" the banks. It is not yet known whether they are identical with any of the following middle and northern species: *experta, linearis, laticeps, faceta, harfordi, crebrepunctata.*

Tinotus.—Two examples of *caviceps* were taken at Pomona in January.

Myrmedonia.—*M. sonomæ* is described from Sonoma County, and *M. fauveli* is said by Casey to occur near Los Angeles.

Anepsiota.—*A. insignis*, San Francisco.

Phlœopora.—Two species so referred were found at Pomona and San Diego.

Calodera.—*C. attenuata*, middle California (Monterey and Napa counties).

Polystoma. — *P. arenaria*, not very abundant at Redondo beach, San Diego, Santa Monica, and the islands off the coast. I have seen one specimen from

San Bernardino, but all others are from the immediate vicinity of the coast. *P. pacifica* is described from Santa Barbara.

Microglossa. — Fauvel mentions the occurrence of *suturalis* in "California."

Aleochara.—*A. sulcicollis* occurs only on the beaches, where it is quite abundant; several other species are generally common in excrementitious matter. One example of what seems surely identical with the European *puberula* has been taken at Pomona.

Maseochara.—*M. valida*, found at Pasadena, April to July, under decaying fruits and vegetables: *puberula*, one example at Arrowhead Hot Springs, May 31.

Thiasophila.—Several specimens of a species taken at Pomona early in September: *asperata* occurs at Lake Tahoe and Truckee.

Isoglossa.—A fine species, doubtfully referred to this genus, occurred in the San Bernardino Mountains in July: *arcuata* was described from Lake Tahoe.

Oxypoda.—About five species of this genus are known to me from Southern California. Casey describes *fustiger* from Humboldt County, and *californica* from "Cal."

Myrmecochara.—An undescribed species from Lake

Leptusa.—A single specimen of a species taken at Pomona.

Oligota.—A minute species is sometimes beaten abundantly from the branches of trees; it is quite likely not separable from *pusillima.*

Sipalia.—*S. frontalis,* "California."

Bryobiota.—*B. bicolor* is a very small linear species, occurring rather plentifully on the ocean beach at San Diego and Santa Barbara.

Somatium.—*S. oviforme* is occasionally found in some numbers at Pomona, usually by beating.

Gyronycha.—*G. obscura,* rather common at times along the banks of streams, Pomona; a smaller form found in the Ojai Valley seems different. *G. attenuata* occurs at Monterey and in Napa County.

Bamona.—*B. falliana* is not rare at Pomona along the margin of streams.

Myllæna.—One example of a species taken in Los Angeles County.

Acylophorus.—*A. pronus,* taken only in small numbers at Pomona, January, and Palm Springs in April.

Heterothops.—*H. fumatus* var. *californicus* and *H. carbonatus* occur not uncommonly near springs or streams: *pusio* is less frequent in like situations: *occidentis* was taken deep in the detritus of hollow oak stumps at Pomona, February.

Quedius.—The species occur for the most part under stones or drift along the margins of streams in the foothills and mountains, though *fulgidus* is likely to be found almost anywhere. *Q. capucinus* and *Q. limbifer* are most often taken: *explanatus* and *erythrogaster* are rather scarce: *desertus* is found east of the mountains: *prostans* is rather common in wet moss, at considerable elevations, but is only rarely taken in the lower valleys: *debilis* and *seriatus* are northern; of the latter I secured several examples near San Francisco (Marin County).

Thinopinus.—*T. pictus* is not rare on various beaches from San Diego northward; specimens in my collection were taken at Redondo, February; Coronado, June; Santa Monica, August.

Creophilus.—*C. villosus*, wide-spread, but usually not abundant; very common on San Clemente Island in May and June, about the carcasses of birds and foxes shot by hunters.

Hadrotes. — *H. crassus* is taken on sea beaches; Redondo, March to May; Santa Barbara, February; San Diego; not numerous.

Staphylinus.—*S. saphyrinus*, not uncommon under stones near water, especially in the foot-hills: *luteipes*, less common; Pomona, January; Santa Barbara, February: *tarsalis*, quite rare, Pomona and Los Angeles: *rutilicauda*, found in the middle Sierras: *nigrellus*, found farther north: *cinnamopterus* is said by Horn to occur near Pomona, November to January: *semiruber*, rare; two examples only taken along a stream in foot-hills near Pomona: *hepaticus*, very scarce, same locality as preceding: *flavolimbatus*, has occurred at Pasadena in November, but is very rare west of the mountains; not rare at Yuma: *grandicollis*, not common; my specimens were taken in the bed of the Los Angeles River, near the city, in August: *longicornis*, widely distributed, but not very common: *discoideus*, rare at Pomona about stables: *alumnus*, the form with red thorax and elytra is very common at Yuma, on the river shore: *pettiti* and *triangulum*, not rare, many localities: *ferreipennis*, rather infrequent, Pomona, June to September: *sordidus*, common about houses and stables: *versutus*, two specimens only, San Bernardino Mountains, elevation 5,000 feet: *virilis*, not rare, same locality as the last: *nigritulus*, everywhere abundant: *instabilis*, has occurred on one occasion at Mojave: *quadrulus*, not infrequent in the foot-hills near Pomona: *lecontei*, not common, but widely dispersed. In addition to the above the following occur within the State: *politus* and *albionicus*, from San Francisco, north; *clunalis*, at Alameda; *puberulus*, from Tulare, north; *theveneti*, *crotchi*, *punctatellus* and *picicornis*, in the middle Sierras and Lake Tahoe region; *decipiens*, *bidentatus*, *siegwaldi*, *bucephalus*, *varians* and *caurinus*, from the north; *furvus* and *ventralis*, from "Cal.," but probably not southern. There are in my collection several probably undescribed species, for the most part represented by females only.

Actobius.—*A. ocreatus*, not uncommon at Los Angeles, Pomona, etc.: *sobrinus*, one specimen, Fort Yuma (Horn): *puncticeps*, abundant everywhere in the foot-hills and mountains; rare in the valleys: *gratus*, widely diffused, but nowhere common: *pæderoides*, very common everywhere from the sea-level to moderate altitudes, both east and west of the mountains: *formosus*, not common, Pomona and Pasadena: *elegantulus*, usually not plentiful, but at times found in numbers, Pasadena and Pomona. All the species are found only in the vicinity of water. The following occur in middle California: *senilis*, *infimus*, and *semipunctatus*—the latter now identified with *Bisnius procerulus* Grav.

Cafius.—The species of this genus are confined to the seacoast, and are often found in great numbers in or beneath decaying seaweed, or other littoral rubbish. *C. canescens* is our most abundant species, but *seminitens*, *lithocharinus*, and *luteipennis* often occur nearly as plentifully: *decipiens* is said to occur rather commonly at San Diego: *sulcicollis* and *opacus* are rather rare. All the species, except *seminitens* and *decipiens*, have been reported from one or another of the islands.

Xantholinus.—*X. cephalus*, not rare in the Sierras, under bark: *picipennis*, common in fields and pastures beneath stones, cow-droppings, etc.: *dimidiatus*, "San Bernardino, Mojave Desert," Pomona, May; in decaying yucca; rare: *obscurus*, not rare in damp situations near Pomona, September to February: *nanus*, San Diego; not seen by the writer: *pusillus*, not frequent, Riverside

Othius.—*O. californicus*, Mann, "Alaska and California." I have seen specimens taken at Stewart's Point (Ricksecker), and at Monterey (Fényes).

Baptolinus.—*B. punctiventris* is not uncommon under bark at Lake Tahoe; found also by Mr. Daggett, on Mt. Whitney, at an elevation of 11,000 feet.

Stenus.—*S. renifer*, *S. incultus* and *S. gilæ* occur on the Colorado River, the two latter being moderately common in Yuma early in July: *sculptilis* and *californicus* are very abundant along mountain streams, the former also occurring occasionally in the valleys: *costalis*, less common in same situations: *terricola*, one example, San Bernardino Mountains: *zunicus* and *pacificus* are found everywhere in the lower country, the former common at times, the latter always abundant: *insignis*, not rare at Pomona, November to May: *vestalis*, one example, Riverside: *sayi*, found in some numbers about the roots of grass in marshy spot near Pomona, January; not seen elsewhere: *pinguis*, common in many localities, occurring in prodigious numbers at times; hundreds have been found on every square yard of ground about a small lake near Pasadena, great numbers flying about and swarming on the shrubbery about the lake at the same time: *lætulus*, rather rare, Ventura, Riverside, Pomona; March to May: *alveolatus*, one example, so named, San Diego: *lucidus*, a single example taken at Pomona, May.

The following additional species are recorded from the State: *tristis*, *luctuosus*, *luculentus* and *vacuus* from the middle regions; *corvus* from Fort Tejon; *dives* and *subgriseus* from the north; *ellipticus*, *colonus*, *villosus*, *exilis*, and *pollens* from "California" without definite locality.

Cryptobium.—This genus is not well represented in California, *californicum* being the only species known from west of the mountains; it is not rare, especially in the foot-hills and mountains. *C. tumidum* is recorded from California, Arizona and Utah, and is doubtless confined to the region east of the mountains. I have taken females of an undetermined species at Yuma.

Lathrobium.—*L. puncticeps*, rather rare : *jacobinum*, very common along any of the streams from the Sierras: *californicum*, rare, Pomona, May ; Redondo beach, March : *lituarium*, a few specimens taken at Indio and Yuma : *subseriatum* occurs in the northern part of the State. There are three undescribed species in my collection, one from Southern California (Pasadena), and the other two from the north.

. **Caloderma.**—*C. rugosa*, *C. mobilis* and *C. reducta* are all abundant under vegetable debris near water, occurring sometimes in great numbers in damp places in the mountain cañons: *continens* is recorded from San Diego; it is probably not different from *rugosa*. Three species not yet determined have been found in the cañons near Pomona.

The other species described by Casey—*angulata*, *contracta*, *luculenta* and *tantilla*—occur in the middle and *lepida*, *puberula*, *sublesta*, *consanguinea*, *contigua*, *luctuosa*, *retrusa*, *gregalis*, *mimula*, *languida*.

Lithocharis.—*L. ochracea*, not common, Pomona in June, flying at twilight: *alutacea* is described from Santa Clara County: *quadricollis*, from Lake County.

Stilicus.—*S. occiduus*, one example, Los Angeles, August: *quadriceps* and *opaculus* are described from "Cal."

Pæderus.—*P. femoralis*, "So. Cal." (teste Horn),* doubtless from the Colorado River region: *compotens*, common in the vegetable detritus on the shore of Lake Wilson at Pasadena, May: *ustus*, abundant along the banks of the Colorado at Yuma.

Sunius.—*S. californicus*, not common: *longiusculus*, frequent. Both are quite widely distributed.

Scopæus.—*S. truncaticeps*, a single example, Pomona, June, so determined by Casey: *armiger*, a single specimen, Pomona, December.

Scopæodera.—A few examples of *nitida* were taken at Yuma in July.

Leptorus.—*L. texanus*, Colorado River, Yuma: *californicus*, Palm Springs, western border of Colorado Desert: *longipennis*, one specimen, Pomona.

Orus.—*O. punctatus*, common nearly everywhere west of the mountains: *fraternus*, not rare at Pomona and San Bernardino: *montanus*, two examples, male and female, San Bernardino Mountains: *parallelus*, northern (Napa and Sonoma counties).

Pinophilus.—*P. densus*, valley of Colorado River.

Palaminus.—*P. lividus*, taken on leaves of *Salix*, Yuma (Le Conte).

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* "The Coleoptera of Baja California," Proc. Cal. Acad. Sci., 2nd Ser., Vol. IV, 1894, p. 319.

Tachinus.—*T. agilis* and *T. debilis* are both rather widely distributed and moderately common. The genus is better represented farther north, *semirufus* and *angustatus* occurring in the middle regions, and *tachyporoides*, *pallipes* and *instabilis* in the upper portions of the State. A female specimen taken at Lake Tahoe is referred somewhat doubtfully to *memnonius*.

Tachyporus.—*T. californicus*, exceedingly abundant nearly everywhere; often seen flying at twilight in spring and early summer: *natidulus*, rare, Pomona, Lake Tahoe.

Cilea.—One example of *C. silphoides* from Pasadena, taken in February (Fényes).

Erchomus.—A single specimen of *E. punctipennis* was taken in the San Bernardino Mountains.

Conosoma.—*C. bipustulatum*, Wilmington and Santa Barbara (Horn); I have an example from the middle Sierras: *castaneum*, not rare in or under decaying wood, especially in the foot-hills of the Sierras; fungivorous according to Horn.

Boletobius.—*B. cincticollis* is common in mushrooms.

Bryoporus.—*B. rufescens* is said to occur from "Pennsylvania to California;" I have not seen California

Pseudopsis.—*P. obliterata*, *P. detrita* and *P. minuta* occur not uncommonly, and occasionally in large numbers, in the vegetable detritus along our mountain streams; the first named species was described from the valley of the Gila.

Oxyporus.—Specimens of an undescribed species have been taken at Lake Tahoe in Nevada by Mr. Schwarz, and on the California side of the lake by Dr. Fényes.

Bledius.—The species are numerous, and are found for the most part burrowing in wet sand or mud on the margins of fresh-water streams and ponds. *B. diagonalis* is recorded by Le Conte as occurring on salt marsh at San Diego: *cribricollis* appears to be confined to the sea-coast; I have seen it in abundance on the beach at Santa Barbara in February, but it is likely to be plentiful at all seasons: *ferratus*, *jacobinus*, *flavipennis* and *eximius* are all reported from San Diego, but I do not know them in nature: *opacifrons*, San Diego and Los Angeles: *luteipennis*, San Bernardino: *armatus*, Riverside, Pomona, Long Beach; not common: *nitidiceps*, Los Angeles, Wilmington (Le Conte), Pomona, one example in nearly dry bed of brook, November: *relictus*, two examples, Pomona: *laticollis*, common, many localities: *rusticus*, rare, Pomona: *ruficornis*, abundant everywhere: *clarus*, Riverside, Pomona, not common; *pleuralis*, occasionally common; once taken in numbers in San Dimas Cañon near Pomona, April: *ornatus*, not rare near the sea-coast, rare inland; taken in numbers at Redondo, February: *forcipatus*, Yuma (Le Conte): *punctatissimus* and *phytosinus* are recorded from "Southern California" without definite locality. A single specimen [illegible] small black species not yet determined has be[illegible] at Pomona The following occur further north: *deceptivus*, sp. nov, Kern County; of Casey's species, *strenuus* and *monstratus* occur at San Francisco, *lectus*, *foraminosus*, *gentilis*, *gracilis* and *bicolor* somewhat farther north, *parvicollis* in Mendocino County, *monticola* at Lake Tahoe, and *villosus* from "California".

Platystethus.—*P. americanus* occurs chiefly about cow-droppings, both east and west of the mountains.

Oxytelus.—*O. sculptus*, not rare about stables, etc.: *sobrinus*, one example, Pomona, December: *laqueatus*, *nitidulus*, *vegrandis*, and *niger* are found near San Francisco and farther north, the last-named species and *montanus* occurring at Lake Tahoe.

Haploderus.—*H. flavipennis* and *H. cephalotes* are both often taken in the vegetable detritus which collects in damp situations along streams or ponds: *linearis* is quite surely more northern in habitat: *annectens*, reported from San Francisco and Sonoma County.

Trogophlœus.—*T. gilæ* and *T. pacificus* are common under rubbish about gardens and along water courses at Pomona: *diffusus* occurs along streams in the higher parts of the Sierras: *prominens*, one example, Los Angeles (Casey): *confinis*, *debilis*, and *blediimus* are

Apocellus.—*A. analis* and *A. gracilicornis* are both rather common near water, especially about reservoirs, irrigating ditches., etc., in cultivated regions: *sphæricollis*, one example, Pomona, April.

Ancyrophorus.—A small colony of *A. planus* was once taken in drift in a mountain cañon near Pomona.

Thinobius.—*T. hesperius*, Yuma (Casey): two unidentified species from Southern California, one of which is quite surely undescribed, and the other is probably *oxytelinus*. The following species are described from farther north: *macropterus*, "various localities" (Le Conte); *sonomæ*, Sonoma County; *gracilicornis*, Santa Clara to Sonoma counties: *validus*, Marin County and north.

Zalobius.—*Z. serricollis*, common under rubbish near water, more especially in the foot-hill and mountain cañons: *spinicollis*, middle and northern parts of the State; found in situations similar to the last.

Asemobius.—*A. cœlatus*, "California" (Horn, "Coleoptera of Baja California," Supp. I.).*

Deleaster.—*D. concolor*, from San Francisco and north.

Geodromicus.—*G. temporalis*, quite rare along mountain streams, near Pomona, September: *humboldtianus*, northern.

Tilea.—*T. cavicollis*, *T. rufitarsis* and *T. filicornis* occur in the middle and northern Sierras.

Vellica.—*V. longipennis*, from Middle Sierras and north.

Artochia.—*A. productifrons*, from Santa Clara County.

Unamis.—*U. truncata*, from Middle Sierras.

Lesteva.—*L. fusconigra*, from Eldorado County.

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* Proc. Cal. Acad. Sci., 2nd Ser., Vol. V, 1895, p. 238.

Brathinus.—*B. californicus* was found in some numbers by Mr. Hubbard at Lake Tahoe, where it occurred in wet moss along a mountain stream; other specimens were found at Sisson.

Amphichroum.—*A. floribundum*, very abundant in many localities, especially on flowers of *Ceanothus*, in April: *puberulum*, described from San Diego; specimens taken in the San Bernardino Mountains are so referred with some doubt. The species are more numerous in the middle Sierras, and from there north to Vancouver. The following are recorded from the State: *sparsum*, *scutatum*, *opaculum*, *flavescens*, *pallidum* and *maculatum* from the middle Sierras (Mariposa and Tahoe); *binotatum*, *pilosellum*, *alutaceum*, *modestum*, from the region about and to the north of San Francisco; *testaceum* and *crassicorne* from still further north.

Tanyrhinus.—*T. singularis* occurs in the Santa Cruz Mountains, but is quite rare.

Lathrimæum.—One example of *L. subcostatum* obtained in the mountain cañon near Pomona, March. The following are recorded: *pictum*, northern; *nigropiceum*, Santa Cruz County; *spretum*, Siskiyou; *atrocephalum*, Tahoe (Fauvel).

whole State is considered, we must add the following: *algarum* and *rugipenne*, from San Francisco; *ater*, from Santa Cruz; *pacificum*, from Siskiyou; *longulum*, *pusillum*, *megarthroides*, *rivulare*, *lapponicum*, *cæsum* and *fractum*, from "California," without indication of locality. It is probable that few, if any, of these latter will be found within our region. Several species in my collection from Southern California are as yet unidentified.

Anthobium.—*A. atriventre* and *A. nigerrimum* occur on flowers, the former very abundantly at Pomona, in April. Two other unidentified—possibly undescribed—species are known to me from Pomona, Ojai Valley and Palm Springs. The species of this genus are somewhat numerous, but not identifiable as the literature now stands. The following are to be added to the above: *auriflluum*, *diversicolle* and *subangulatum*, from Lake Tahoe; *gilvipenne* and *punctatum*, Santa Cruz County; *fraternum*, northern; *californicum*, "California."

Orobanus.—*O. rufipes*, San Diego and Pomona; one example from the bank of a mountain stream near Pasadena.

Protinus.—Two species of this genus have been found on decaying mushrooms at Pomona, in early spring; neither species has as yet been identified. In the mountains of the middle coast region occur *limbatus*, *basalis* and *salebrosus*: *mäklini* is middle or northern: *sulcatus* is described from the middle Sierras.

Megarthrus.—*M. pictus*, reported from middle and northern portion of the State.

Lispinus.—*L. californicus*, not rare in many localities, under bark: *linearis*, less frequent, Riverside, Pomona and Palm Springs—at the last-named locality found under cottonwood bark.

Trigonurus.—All our species occur from middle California north, under bark of conifers. *T. edwardsii* has been taken in Los Angeles County (fide Fuchs).

Micropeplus.—*M. punctatus*, occurs at San Diego (Crotch): a single example of a probably undescribed species was taken at Pasadena, in March, by sifting (Fényes): *tesserula* and *brunneus* are more northern.

TRICHOPTERYGIDÆ.

These minute things have not been systematically searched for, and the number recorded from Southern California, and indeed from the whole State, is very inconsiderable.

Actidium.—Four species are on record: *robustulum*, *granulosum* and *attenuatum* from the middle coast region (Santa Cruz), and *politum* from "California."

Motschulskium.—*M. sinuatocolle* occurs plentifully at times on various beaches from San Diego northward.

Ptilium.—An unidentified species has been taken sparingly at Pomona: *columbianum*, *humile* and *collani* are said to be from "California."

HYDROSCAPHIDÆ.

Hydroscapha.—*H. natans* is probably not a rare insect, though very seldom taken; when one is discovered a considerable number may usually be obtained by patient search. I have taken it close to the bank in a mountain stream, and also in a muddy spot in a cow pasture near Pomona; Crotch took the first examples in the Los Angeles River.

SPHÆRIIDÆ.

Sphærius.—*S. politus* is rather common on the sandy margins of streams, and is often started in numbers by "washing" the banks.

SCAPHIDIIDÆ.

Scaphisoma.—*S. castaneum*, not very common, found in and about decaying and fungus-grown wood in damp or wet places: *rufulum*, occurs at Yuma (Le Conte).

PHALACRIDÆ.

The species of this family are for the most part common on flowers; they are difficult to identify with certainty, and have been generally neglected by collectors.

Phalacrus.—*P. ovalis*, common at Pomona, Riverside, etc.: of *penicillatus* (so named by Casey) a number of specimens were taken in the San Bernardino Mountains: *conjunctus*, same locality as the last; also San Diego (Casey). The species here called *ovalis* is possibly not that species; it was pronounced "n. sp." by Casey, to whom specimens were sent for identification, but a comparison with Le Conte's types shows scarcely any tangible difference; in fact, the three species here named are separated by characters of very doubtful significance.

Olibrus.—*O. wickhami*, sp. nov., Southern California (Casey); many specimens collected in San Diego County by Dunn.

Acylomus—*A. nebulosus*, taken at Yuma, in March (Daggett).

Eustilbus.—*E. apicalis*, widely distributed and rather common; I have beaten it in some numbers from a very tall dried grass at Pasadena, in February: *obtusus* and *nanulus* both occurred plentifully about the roots of grass in a marshy spot near Pomona, in January: *notabilis* occurred sparingly in the same situation: *aquatilis*, described from San Jose.

CORYLOPHIDÆ.

Sacium.—*S. amabile*, found under bark of sycamores, sometimes in large numbers. I took on one occasion over seven hundred examples from beneath the bark of a fallen sycamore in the Ojai Valley, early in March: *decolor*, rare, Pomona: *scitulum*, described from Yuma (Le Conte).

COCCINELLIDÆ.

Since the following notes were written there has come to hand a Revision of the American Coccinellidæ by Captain Casey. Among the large number of new species are many that are accredited to California, but as not a few appear to me to be merely slight color variations of old forms, I have thought it best to exclude them till the matter could be more carefully investigated. Except in the case of *Exochomus*, no reference will be made to this paper.

Anisosticta.—*A. seriata*, plentiful in September, along the shore of San Diego Bay (Blaisdell).

Næmia.—*N. episcopalis*, one specimen, swept in marshy spot at Tallac, Lake Tahoe (Fényes).

Megilla.—*M. maculata*, Colorado River and Palm Springs; I have not seen specimens from the maritime slope as yet: *vittigera*, not uncommon, especially on weeds or low herbage, in river bottoms.

Eriopis.—*E. connexa*, "California" (Mulsant).

Hippodamia.—*H. ambigua* and *H. convergens* are exceedingly abundant at nearly all seasons throughout Southern California, and intermediates are common: *parenthesis*, very rare, on squash vines, at Poway (Blaisdell): *5-signata*, an example in Mr. Fuch's collection from Los Angeles County, and bearing the label *lecontei*, is scarcely distinguishable from eastern specimens of *5-signata*; it is more than likely that *lecontei* is only a slight variety of Kirby's species: *spuria*, San Diego County (Fuch's collection).

Coccinella.—Blaisdell records *9-notata* from San Diego County, but I have not yet seen typical specimens from our region; the var. *franciscana* is found in most localities, and is not rare. *C. transversoguttata* var. *transversalis* was abundant during the season of 1897, on the islands, and occurred rather frequently at Pasadena, but I do not recall seeing it either before or since: *californica* is rather common every season, and in nearly all localities: *monticola* has been taken by Dr. Fényes at Lake Tahoe (Mt. Tallac, elevation 9,000 feet), and *prolongata* is said by Crotch to occur in California; these two species are exceedingly closely related, and I am inclined to doubt their distinctness. According to Fauvel, the European *11-punctata* Linn. has been taken in California.

Cycloneda.—*C. sanguinea* is common and widely diffused: *oculata*, rare, Pasadena: *abdominalis*, moderately common, especially in cultivated grounds.

Adalia.—*A. frigida*, "California," must be northern: *bipunctata* var. *humeralis*, one example, Santa Rosa (Ricksecker).

Harmonia.—*H. picta*, common on pines in the Sierras.

Anatis.—*A. rathvoni*, "California, Oregon": *subvittata*, middle and northern Sierras: an undescribed species from Lake Tahoe, elevation 9,000 feet (Fényes).

Chilocorus.—*C. bivulnerus*, plentiful about orchards and cultivated grounds everywhere: *cacti*, generally much less frequent, probably more common in the southeast.

Exochomus.—*E. pilatii*, generally quite rare; on one occasion I found it in some numbers in an olive orchard at Pomona, where it was feeding on the black scale with which the trees were infested; it has also been found rather plentifully at Pasadena, by Mr. Daggett, on certain pepper trees *(Schinus molle)* infested by this same scale. *E. californicus* occurs in the Sierras from the San Bernardino Mountains to Siskiyou, and also in Marin County: *fasciatus* is common throughout our district: *childreni* has occurred at Pasadena and Redondo: *histrio*, Pomona, in the foot-hills.

Cryptognatha.—*C. pusilla*, abundant near Pomona, on live-oak, October: *catalinæ*, a small number taken by beating on Catalina Island, August; probably not different from the preceding.

Smilia.—*S. reversa*, occurs on pines in the Sierras (San Bernardino and Lake Tahoe), and is apparently not uncommon: *ovalis*, specimens so referred are common on live-oak at Pomona, September to November.

Hyperaspis.—The species occur by beating and sweeping the shrubbery and herbage of uncultivated ground. *H. fimbriolata* and its variety *dissoluta* are represented in my collection by single specimens taken at Pomona in May and June: *lateralis* is our commonest species: *undulata* (?) is also rather common and very variable: *tæniata*, not rare at Pomona and Pasadena: *excelsa*, rare, Pomona, November; Pasadena, April; San Bernardino Mountains, July: *spiculinota*, not common at Pasadena and Pomona; usually if not always on a species of tall grass or rush both living (June) and dead (November): *annexa*, not rare; Pomona, June to November: *tristis*, specimens so referred by Dr. Horn were bred in numbers from cactus by Professor A. J. Cook, at Claremont: *postica* was described from northern California, and *osculans* and *4-oculata* from "California" simply.

Hyperaspidius.—*H. trimaculatus*, widely dispersed but not very common: *arcuatus*, Colorado River (Le Conte).

Scymnus.—A few specimens of *tædatus* were beaten from pines in the San Bernardino Mountains: *sordidus*, scarce; San Bernardino, Pomona: *guttulatus*, occurs at Pomona, Pasadena, Redondo, Catalina Island, etc., most frequently in March and April, but at no time common: *nebulosus*, tolerably common in the foot-hills near Pomona; taken also in the Ojai Valley and at Catalina Island: *pallens*, common on live-oak nearly everywhere, especially from October to February: *mimus*, two examples only; Riverside and Pomona: *cinctus*, moderately common and wide-spread: *pacificus*, rare; Sierras, 3,000 to 5,000 feet elevation: *flebilis*, two examples taken at Yuma: *cervicalis*, rare; Pomona and Catalina Island: *marginicollis*, our commonest species and the only one occurring in orchards as well as on wild growth: *ardelio*, nearly as abundant as the pre-

Cephaloscymnus.—*C. occidentalis*, rare; Long Beach, Pomona, Catalina Island: *ornatus*, generally uncommon; Pomona, San Diego, Catalina Island, San Bernardino Mountains. These two species are not congeneric, and it is probable that a new genus will have to be erected for the latter.

Rhizobius.—*R. lopanthæ* is now found quite frequently in many localities west of the mountains; it is the only one of the introduced species that has so thoroughly established itself as to be independent of artificial support.

ENDOMYCHIDÆ.

Two specimens of an undescribed species allied to *Mycetæa* were found in rotten wood in a cañon near Pomona in June.

Phymaphora.—*P. californica*, "San Francisco and western Nevada" (Horn).

Xenomycetes.—*X. morrisoni* is found at Castle Crag in fungus (Fényes).

Aphorista.—*A. morosa* and *A. læta* occur rather uncommonly at various places in the foot-hills and mountains; both are fungivorus.

Mycetina.—*M. hornii* occurs sparingly under bark at Lake Tahoe: *limbata* is probably from the middle regions.

EROTYLIDÆ.

Languria.—A single specimen of *californica* was taken at Redondo, on *Astragalus crotalaræ*: *convexicollis*, Owens Valley.

Dacne.—*D. californica*, common at Pomona, Pasadena, Ojai Valley, etc., in fungi; March: *picea*, described from "California."

Tritoma.—*T. californica* is found abundantly in fungi, Ojai Valley, March.

COLYDIIDÆ.

Rhagodera.—*R. tuberculata*, rare, Pomona, May.

Anchomma.—*A. costatum* is usually rather rare, occurring singly or in small numbers under stones; once taken in considerable numbers beneath a stone with *Pheidole hyatti* at Redondo in April.

Megataphrus.—*M. tenuicornis* is northern (Casey).

Synchita.—*S. variegata*, rare; taken occasionally on the wing on warm days in January and February at Pomona; once taken in some numbers under bark at Pasadena in February (Fényes).

Ditoma.—*D. ornata*, not rare under bark; Pomona, Yuma, San Bernardino, etc.: *sulcata*, usually not common; once found in numbers under the bark of an old dead stump nearly covered with a woody fungus; Pomona. *D. suffusa* is probably a color variety of [redacted] bark in the same locality as the preceding: *complex* is northern, while *vegrandis*, *pertenuis*, *nucleatus* and *apicalis* inhabit the middle coast region.

Aulonium.—*A. longum*, rare under pine bark; San Bernardino Mountains: *parallelopipedum*, one specimen taken in "California" (Horn).

Aglenus.—*A. brunneus*, one or two examples were taken each morning from beneath a portion of the trunk of a recently cut fig tree; others were sifted from stable refuse near by; Pomona, October, February.

Oxylæmus.—A few specimens of *californicus* were taken flying at twilight about lumber piles; San Bernardino Mountains.

Deretaphrus.—*D. oregonensis*, middle Sierras and north.

Cerylon.—*C. castaneum*, not common; found once under oak bark in the San Bernardino Mountains: *californicum* and *sylvaticum* are described by Casey from Lake Tahoe.

Lapethus.—*L. discretus*, found under bark; Humboldt County (Casey).

RHYSSODIDÆ.

Rhyssodes.—*R. hamatus*, not common, under bark of fallen conifers, San Bernardino Mountains; much more plentiful at Lake Tahoe and further north.

CUCUJIDÆ.

Silvanus.—*S. surinamensis*, occurs commonly in stored cereals, etc.: *bidentatus*, "not very common, occurs with the preceding;" San Diego County (Blaisdell):

imbellis, one example; San Diego (Blaisdell): *nitidulus*, now referred to *planatus*, was described from California.

Cathartus.—*C. advena*, common about gardens, stables, etc.: *opaculus*, not very common but generally diffused; Yuma, San Bernardino, Pomona; once taken in some numbers under bark of eucalyptus in December.

Nausibius.—*N. clavicornis*, "Commercial storehouses occasionally" (Blaisdell).

Prostomis.—*P. mandibularis* is northern.

Narthecius.—*N. grandiceps* is very rare; I once took about a dozen specimens from the burrows of *Pityophthorus pubipennis*, San Bernardino Mountains, in August. Casey has described *simulator* from Santa Cruz County.

Pediacus.—*P. depressus*, not common, under bark, San Bernardino Mountains: *fuscus* has been taken near San Francisco (Marin County) by Van Dyke.

Cucujus.—*C. clavipes* var. *puniceus*, Lake Tahoe and north.

Læmophlœus.—*L. biguttatus*, usually not common; found flying late in the afternoon of warm days in early spring; occurs at times in large numbers under decay-

Lathropus.—*L. vernalis*, not common; about a dozen specimens once taken under bark at Pasadena in February (Fényes). A careful comparison of the type of *pubescens* satisfies me that this is merely a specimen of *vernalis* in which the pubescence of the upper surface is more distinct than usual. This pubescence is plainly visible in specimens of *vernalis* in my own and in the Le Conte Collection, and, I suspect, may always be seen in fresh specimens.

Brontes.—*B. dubius* var. *truncatus* is rather common in many localities, especially under oak bark.

CRYPTOPHAGIDÆ.

Henoticus.—*H. serratus*, not rare, Pomona, Ojai, etc.; taken most frequently on the wing about houses and gardens on warm evenings.

Cryptophagus.—A species quite common at Pomona is referred with confidence to *debilis*; the species was described from San Diego: *cellaris* is said to occur at San Diego; it must be closely allied to *debilis* if it is really distinct: *lecontei*, occurs at Yuma. Two other species in my collection, from Pomona and San Bernardino Mountains, are not identified.

Atomaria.—At least three species are more or less common under debris and about the roots of plants in damp places; one of these is probably *lætulus* (described from San Jose), which is somewhat variable in color according to the series in the Le Conte cabinet. *A. fuscicollis* is said by Fauvel to occur in California.

MYCETOPHAGIDÆ.

Mycetophagus.—*M. californicus* and *M. pluriguttatus* are both uncommon, occurring in fungus; both species have been taken in Pasadena rather early in spring, and I have found the former in the San Bernardino Mountains in August.

Litargus.—*L. balteatus*, common in decomposing vegetable matter; found in many localities.

Typhœa.—*T. fumata*, plentiful everywhere.

Berginus.—*B. pumilus*, Yuma, Pomona, Redondo, San Diego, Long Beach; sometimes abundant on certain composite flowers, especially near the coast.

Myrmechixenis. — *M. latridioides*, taken not rarely about houses and gardens, Riverside, Pomona, Pasadena.

Diplocœlus.—An undescribed species taken at Yuma (Wickham).

DERMESTIDÆ.

Byturus.—*B. grisescens* has been beaten in numbers from live-oak at Pomona and Santa Barbara, during January and February.

Dermestes.—*D. marmoratus*, *D. mannerheimii* and *D. vulpinus* are everywhere common: *talpinus* is less common: *tristis*, rather scarce: *carnivorus*, not rare, but *perplexus* has been taken at Castle Crag (Fényes): *hornii*, recorded from the "Pacific States" by Jayne, but I have seen no specimens from California; it is rather frequent in Arizona, and it is likely that it may occur in the adjacent desert region of California.

Trogoderma.—*T. ornatum*, common and widely dispersed: *sternale*, much rarer; I have taken a single example on Catalina Island.

Anthrenus.—*A. scrophulariæ* and *A. verbasci* are both abundant everywhere on flowers; the latter has on one occasion been reared from larvæ found in one of my duplicate boxes.

Cryptorhopalum.—*C. apicale*, common on blossoms of willow in April: *balteatum*, much scarcer; on flowers, Pomona: *ruficorne*, two examples; Pomona and Yuma. An undescribed species is not rare at Pomona and Pasadena.

Orphilus.—*O. niger* is common nearly everywhere on flowers.

HISTERIDÆ.

Hololepta.—*H. yucateca* is said by Blaisdell to be rather plentiful at San Diego from May to November, in decaying fruit of *Cucurbita*, *Echinocactus viridescens*, and leaves and stalks of *Opuntia occidentalis*. I once found a dozen or more examples in a decaying flower-stalk of *Yucca whipplei*, near Pomona in June. These latter were apparently the form described by Blaisdell as *pervalida*, and are easily separable from Arizona specimens of the typical *yucateca*, and it is not unlikely that Blaisdell's name will be restored to specific standing. *H. cacti* is abundant at San Diego in decaying cacti, and is frequently taken from beneath bark of decaying and water-soaked wood of the willow (Blaisdell); I have never seen the species near Los Angeles: *vicina*, common in decaying fruit of *Cucurbita*, also between the leaves and in the decaying flower-stalk of *Yucca whipplei*: *neglecta*, rare, in decaying squashes; San Diego (Blaisdell): unknown to me: *populnea*, not common: one example, under bark, Riverside, May; more common in the desert portions of San Bernardino and San Diego counties.

Hister.—*H. sellatus*, " not common, in spring and early summer flying about sandy places near streams; also found about the roots of plants" (Blaisdell); I have found it rarely in spring at Pasadena, and in small numbers under plants growing near the beach at Santa Monica, August: *lucanus*, Southern California (Horn): *simplicipes*, one example, San Diego County: *sexstriatus*, not common, occurring in early spring, flying or resting beneath boards or about the roots of plants in grassy places; Riverside, Redondo, Pomona, San Diego: *militaris*, Yuma (Horn): in some seasons quite common, frequenting the sandy banks of streams; San Diego (Blaisdell): *bimaculatus*, one example found dead near a small stream, Riverside: *lecontei*, specimens in the Horn Collection from the southeastern portion of the State: *punctiger*, common under pine bark in the Sierras: *remotus*, recorded from Tejon (Horn): *fracti*-

Epierus.—*E. regularis*, San Diego, San Bernardino: *planulus*, San Diego, Yuma (Horn): *nasutus*, Yuma, under cottonwood bark (Horn). All these are doubtless more common in the southeastern part of the State, and are probably all to be found under the bark of various trees, but especially cottonwood.

Hetærius.—No species of this genus is yet recorded from Southern California, but *californicus* has been found at Sonoma, *tristriatus* at Calaveras, and *morsus* at Fort Tejon.

Onthophilus.—*O. lecontei*, very rare; three examples taken at Pasadena, in December, under rotten squash.

Paromalus.—*P. difficilis*, Mojave (Horn); San Diego (Fuchs): *mancus* is described from Humboldt County by Casey.

Carcinops.—*C. opuntiæ*, not common at Pomona; more abundant in San Diego County and the southeast, in decaying *Opuntia*: *tejonicus*, a single specimen taken under pine bark in the San Bernardino Mountains: *gilensis*, one example, under chips on a freshly cut oak stump, Pomona; common in Arizona in decomposing cacti (*Cereus*): *consors*, said by Blaisdell to be common in decaying vegetable matter in San Diego County. A species found in numbers in decaying *Yucca whipplei*, near San Bernardino, was identified by Horn as *consors*, but a comparison with the type of this species makes this reference doubtful: *tenellus*, Colorado River, under bark. Casey mentions seeing a specimen of *14-striatus* from Lake County, and I have recently seen the same species from Lower California; it will probably be found in our region.

Anapleus.—*A. marginatus*, San Diego County. The species was described by Casey under the name *compactus*, but is considered identical with *marginatus* by authorities.

Saprinus.—Numerous species inhabit Southern California, occurring in or about decomposing animal or vegetable matter. *S. discoidalis*, moderately frequent at Redondo beach, especially in spring; occurs also in Owens Valley and in Arizona: *interstitialis*, rare at Pomona, February to March: Catalina Island, and Placer County, early spring: *pectoralis*, not rare from the mountains to the sea, in early spring (February to March); there can scarcely be a doubt that *behrensi* is nothing more than an unusual form of *pectoralis*, in which the prosternal striæ have become united in front. I have seen intermediate forms. *S. obscurus* occurs with *pectoralis* and is about equally common; they are certainly very closely allied, if, indeed, they be distinct: *præminosus*, moderately rare; Pomona, Ojai, Pasadena, San Diego: *alienus*, occurs only in the desert regions from Owens Valley to San Diego County: *lugens*, excessively abundant at times and always common, widely distributed: *oregonensis*, not rare; many localities: *liticolus*, rather common on Redondo beach, December to April: *scissus*, common on sea beaches; I have never seen it inland: *laridus*, numerous examples taken on the beaches at Redondo and Santa Monica; Wickham reports it from Needles—possibly an error: *insertus*, two *estriatus*, several examples taken near San Diego in the bed of the San Diego River, August; also on margin of salt pool at Santa Barbara, August: *lucidulus*, plentiful in the sand dunes at various beaches: *propensus*, San Diego (Casey): *gaudens*, San Diego, Ventura; uncommon on sea beaches: *serrulatus*, rare; sea beaches, San Diego, San Pedro: *sulcifrons*, common on beaches. The following species are also Californian: *rotundatus*, near San Francisco and in Placer County (Van Dyke); *æquipunctatus*, *ciliatus* and *vestitus*, from near San Francisco; *lentus*, Truckee; *opacellus*, northern.

Plegaderus.—*P. fraternus* and *P. nitidus* are usually common under pine bark in the Sierras: *consors* I have seen labeled "San Diego County:" *molestus*, described from Lake Tahoe.

Teretrius.—*T. placitus*, one example found flying early in March at Pasadena (Fényes): *obliquulus* has been taken at Santa Monica by Mr. Albright.

Abræus.—*A. bolteri*, San Bernardino (Le Conte).

Bacanius.—*B. globulinus*, one example taken at Pasadena is thus referred; it is not typical, but as northern specimens show considerable variation, notably in the development of the elytral striæ, it is likely that the differences shown are not specific.

Acritus.—*A. maritimus*, rare, on sea beaches; San Diego and Santa Barbara: *volitans*, several specimens taken flying in the early evening; Pomona, August; others at electric light, Pasadena (Fényes).

Æletes.—*Æ. basalis* occurs near Yuma.

NITIDULIDÆ.

Brachypterus.—*B. troglodytes* is occasionally numerous on nettles; Pasadena, Pomona; April, May.

Cercus.—*C. sericans*, plentiful on flowers of elder (*Sambucus glaucus*) throughout Southern California and the adjacent islands; very variable in size and color.

Amartus.—*A. tinctus* and *A. rufipes* are found on flowers, in March; the former is the more common and has been taken most often from poppies (*Eschscholtzia*).

Athonæus.—*A. agavensis*, San Diego and Los Angeles; on flowers of *Agave*.

Carpophilus.—*C. yuccæ*, Mojave desert, in unopened flower heads of yucca (Crotch): *hemipterus*, abundant: *dimidiatus*, *decipiens* and *discoideus*, less common, in decaying fruit in orchards; September to November: *pallipennis*, plentiful in cactus blooms in all localities: *brachypterus*, northern part of the State: *niger*, recorded from "California" (Santa Cruz, Fuchs).

Colastus.—*C. truncatus*, frequent under bark of freshly cut trees; most specimens are of the form *limbalis*.

Conotelus.—*C. mexicanus*, southeastern California.

Epuræa.—One example (a female) of a species near

Nitidula.—*N. ziczac*, not very common at Pomona and in the southern Sierras, about dried animal remains, old bones, etc.; more common farther east.

Omosita.—*O. discoidea*, not common, in decomposing organic matter, Pomona, San Bernardino Mountains.

Perthalycra.—*P. murrayi*, San Francisco and north, also at Lake Tahoe (Fényes). Several specimens taken in the San Bernardino Mountains are not quite typical but doubtless belong here.

Pocadius.—*P. dorsalis*, "California" (Ulke).

Meligethes.—*M. brassicæ*, common on willows in early spring; Pomona, Pasadena, Ventura, etc.

Cybocephalus.—*C. californicus* is not rare on live-oak, taken by beating; Pomona, Pasadena.

Cryptarcha.—*C. concinna*, one example, by sweeping near brook at Pasadena, August.

Ips.—*I. vitattus* and *I. cylindricus* are northern.

Pityophagus.—*P. rufipennis*, not common in the Sierras from San Bernardino north.

Smicrips.—*S. hypocoproides*, Palm Springs (Hubbard).

Rhizophagus.—*R. sculpturatus*, Placer County (Van Dyke).

LATHRIDIIDÆ.

Holoparamecus.—*H. kunzei*, one example taken on the wing in the early evening, at Riverside, July; others have been taken in "Los Angeles County" by Coquillett: *pacificus*, one example, under bark of decaying log at Pomona, April; also taken by Coquillett in "Los Angeles County:" *caularum*, taken in flight, also under bark, by Dr. Fényes, at Pasadena in February and again in September; found about grass roots at Palm Springs, and in debris along the Colorado River by Mr. Hubbard.

Dasycerus.—Specimens of *angulicollis* have been taken by Dr. Fényes at Monterey, under the fungus-grown bark of a decaying stump.

Metophthalmus.—*M. rudis*, Ojai Valley, Los Angeles, and Panamint Valley; specimens were taken by me in March at the former locality, occurring in the interior debris of a woody fungus: *trux*, one specimen taken on the under side of a log in a moist situation in the San Bernardino Mountains, July: *parviceps*, found in the region about and to the south (San Jose) of San Francisco Bay.

Lathridius.—*L. armatulus*, a rather common species in Southern California from the foot-hills of the Sierras to the coast and as far north as San Francisco, commonly obtained by beating and sweeping; it is not confined to any one plant, but I have taken it most commonly near Pomona on *Solanum nigrum*, in October and November. *L. costicollis* is plentiful near San Francisco.

Coninomus.—*C. constrictus* and *C. australicus* are not rare in our region and probably occur nearly every-commoner further north: *nigritus* and *ventralis* have both been taken at Los Gatos and in the middle Sierras: *sulcatulus* and *fictus* are Californian without more definite locality.

Cartodere.—*C. argus*, several examples on drying yucca pith at Pomona: *quadrifoveolata*, a single specimen, Los Gatos.

Revelieria.—*R. californica* was taken in company with *Metophthalmus rudis*, in woody fungus, Ojai Valley, March. I have seen specimens from "Los Angeles County" and Los Gatos.

Corticaria.—The various species occur under bark, and are frequently taken on the wing at sunset or in the early evening, and occasionally come in numbers to electric lights. None of the species appear to be very abundant, but several would doubtless prove common enough if properly looked for. I have seen specimens of *planula* from Pomona, Pasadena, Ojai Valley, and also from several locations in the central and northern part of the State; the majority of specimens have been taken flying, in early spring evenings. *C. serrata*, *C. elongata* and *C. ferruginea* are cosmopolitan species; a moderate number of the last two have been seen from Los Angeles County: *serrata* is apparently rare in this region: *occidua* and *tenuipes* have thus far occurred only in the Sierras, the latter being known only by the type, which was taken in the San Bernardino Mountains: *inopia* is known from the Tahoe region: *prionodera* is from the middle coast region.

Melanophthalma.—The species of this genus occur on vegetation, and may usually be taken plentifully by beating and sweeping. *M. casta* has been taken at Pomona, Pasadena and Redondo, by sweeping weeds:

simplex occurs on both sides of the mountains, but not very abundantly: *insularis* is known only from San Clemente Island: *distinguenda, gibbosa* and *americana* are all very common all over the State (I have not seen any *gibbosa* that were taken in the desert but it may occur there): *incompta* is represented by only two examples taken at electric light in Pasadena by Dr. Fényes: *similata* is plentiful near the coast from San Diego to San Francisco: *tenella* is based upon two examples in the Le Conte Collection that were found at San Jose: *villosa* has occurred in the Lake Tahoe region: other examples in the Horn and Le Conte collections are probably from the desert, though this is not certain.

Fuchsina.—*F. occulta,* "Los Angeles County:" one example seen, collected probably by Coquillett. The specimen in my collection was taken by Mr. Fuchs in Mill Valley, near San Francisco, by sifting earth about the roots of a redwood. A specimen in the Hubbard and Schwarz Collection is labeled Los Gatos.

TROGOSITIDÆ.

Alindria.—*A. teres* is rare; found under Pine bark, San Bernardino Mountains.

localities. It is practically impossible to identify specimens with any degree of certainty with existing literature.

Peltis.—*P. pippingskoeldi*, Sierras; under bark.

Grynocharis.—*G. pilosula*, Sierras, Mt. Wilson, elevation 6,000 feet.

MONOTOMIDÆ.

Monotoma.—*M. picipes*, not rare on the wing, and is taken by sifting in spring: *mucida*, not common, under leaves, etc., along the Colorado River at Yuma.

Phyconomus.—*P. marinus* is rather common under rubbish along the Southern California beaches above tide-water.

Hesperobænus.—*H. abbreviatus*, common under bark of freshly cut deciduous trees, flower-stalks of yucca, etc.

Europs.—*E. longicollis*, near San Francisco; under bark.

Bactridium.—*B. striatum*, one specimen from Pomona, November; more frequent under bark in the desert region of the southeast. Numerous specimens of a species closely allied to, if not identical with *striolatum* were found under the bark of sycamore, in the Ojai Valley, in March.

BYRRHIDÆ.

Nosodendron.—*N. californicum*, one example from Pine Flats, elevation 6,000 feet, Los Angeles County; commoner in the Sierras farther north.

Amphicyrta.—*A. dentipes*, one example under freshly cut live-oak chips; Pasadena, January 1. Specimens scarcely distinguishable are in my collection from northern California, under the name *chrysomelina*.

Cytilus.—*C. sericeus*, Lake Tahoe and north.

Limnichus.—*L. californicus*, common by washing the margins of streams; Pomona, Riverside, Palm Springs, San Bernardino Mountains, etc.: *perpolitus*, less common, or at least more local; I once took it in some numbers along the Santa Ana River at Riverside and again near Pomona, April to June: *nebulosus*, not common; Pomona, Riverside, Pasadena: *tenuicornis*, once found in numbers on a wet, springy hillside in the San Bernardino Mountains, elevation 6,000 feet: *naviculatus*, not rare at Los Angeles and Riverside: *analis* will probably be found in Southern California, as it is recorded from "California and Arizona;" my specimens are from the middle coast region: *perforatus* is described from Santa Clara County.

Bothriophorus.—*B. minutus*, Riverside and Yuma, along the margin of streams.

GEORYSSIDÆ.

Georyssus.—*G. californicus* was taken once along the Truckee River, near Lake Tahoe; probably common enough in the middle and northern parts of the State, and may very likely yet be found in the mountains in the south.

Throscinus.—*T. crotchii*, several specimens found on mud-flats which are covered at high tide; Coronado, February, July.

Dryops.—*D. productus* and *D. suturalis* are both abundant in all streams: *striatus* occurs in middle California.

Narpus.—*N. angustus*, northern California (Mendocino County).

Elmis.—*E. divergens*, two examples taken from a small reservoir at Pomona, May 11; originally described from Ventura (Le Conte): *foveatus*, several examples at Pomona, June: *quadrimaculatus* is northern: *seriatus* occurs at the Geysers.

Stenelmis.—A small series of *nubifer* was found in a little mountain stream near Pasadena, October 31.

Macronychus.—*M. parvulus*, Pomona and Pasadena, in mountain streams.

HETEROCERIDÆ.

Heterocerus.—The species, except *pusillus*, are about equally common west of the mountains, on muddy margins of streams and ponds. *H. pusillus* probably occurs only in the southeast. I once took *gnatho* in numbers, at electric lights in Riverside. *H. brunneus* occurs in the north.

DASCYLLIDÆ.

Macropogon.—*M. testaceipennis*, Mariposa district, rare (Horn); Alameda (Fuchs).

Eurypogon.—*E. confusus*, one example; Pasadena, May (Fényes): *californicus*, described from a single specimen taken at Geysers.

Allopogon.—*A. villosus*, not common at Pasadena and Pomona; taken in May, by sweeping weeds by the roadside.

Stenocolus.—*S. scutellaris*, rare: Sacramento and Yosemite Valley.

Dascyllus.—*D. davidsonii* is not uncommon in the country to the north of San Francisco (Lake and Sonoma counties, etc.): *plumbeus* occurs in the middle Sierras.

Anorus.—*A. piceus* is taken rather frequently in May and June, flying at dusk: Pomona, Pasadena, Arrowhead Springs; San Diego to Owens Valley (Horn).

Anchycteis.—*A. velutina* occurs in the Shasta region.

Eucinetus.—*E. infumatus*, one example, Santa Barbara, February: taken by sweeping; "occurs near San Francisco, under bark, in February" (Horn).

Acneus.—*A. quadrimaculatus* occurs north of San Francisco.

Helodes.—*H. apicalis*, not common; found in the Sierras from Los Angeles County north. A single example of an undescribed species has occurred at Pomona.

Cyphon.—*C. exiguus*, rare at Pasadena; taken by

In its earlier stages, *Placonycha* is found on rocks under water; the insect rests in a limpet-like covering till the pupa is developed, after which time the beetle leaves the cover and lives out of water (Fuchs).

RHIPICERIDÆ.

Sandalus.—*S. californicus,* "California and Nevada;" occurs at San Diego and Los Angeles (fide Fuchs).

ELATERIDÆ.

Melasis.—*M. rufipennis,* Sonoma County; probably confined to the redwood belt (Ricksecker *in litt.*).

Eucnemis.—*E. americana* occurs near Mt. Shasta.

Dromæolus. — *D. californicus,* "California:" *nitens,* northern: *basalis,* Lake Tahoe and in the mountains of the more northern portions of the State.

Xylobius.—*X. cylindriformis,* "California and Nevada" (Horn); Mendocino County (Van Dyke).

Sarpedon.—*S. scabrosus,* one example, Pasadena (Fényes).

Palæoxenus.—*P. dohrnii,* a species said to have been found near San Diego, but this is probably an error, as is suspected by Horn; the species is quite surely tropical.

Anelastes.—*A. druryii* is common in the higher parts of the Sierras; frequently taken on the wing about camp-fires, in the San Bernardino Mountains, July and August.

Adelocera.—*A. sparsa,* rather rare in Los Angeles County: *profusa* and *rorulenta* occur in the Lake Tahoe region, under bark.

Meristhus.—*M. cristatus* occurs at Yuma, under debris along the river bank; one example was also taken at Riverside; found flying in the evening, in April, at Pasadena (Fényes).

Chalcolepedius.—Le Conte records *C. rubripennis* from Cajon Pass; there is possibly some mistake in the locality: *webbii* is common on willows along the Colorado River: *tartarus*, rare in the same locality.

Alaus.—*A. melanops*, southern and middle Sierras.

Cardiophorus.—*C. amplicollis*, not rare on willows, Pomona, Ojai, etc.; March and April: *gemmifer*, one example in the Horn Collection bears a label indicating its occurrence in the southeast: *luridipes*, common throughout Southern California, December to June: *edwardsii*, rare, Los Angeles County (Van Dyke): *latiusculus*, said to occur in "Southern California:" *tenebrosus* var. (?) *fulvipes*, rather common; Pomona, Santa Monica, Ventura, etc.; January to May. It is probable that *fulvipes* is distinct from *tenebrosus* by the differently formed genitalia, as pointed out by Mr. Blanchard in his revision. I have not seen specimens of typical *tenebrosus* from Southern California, but they are common in the mountains farther north. *C. æneus* is apparently not very common; I have seen specimens from by sweeping: *basalis*, not common; Riverside, February to May: *simplex* occurs at Yuma: *flavidus*, several examples taken at light, at Palm Springs (Fényes): *transfugus*, central and northern California: *gracilis*, about Lake Tahoe.

Esthesopus.—*E. dispersus*, "Southern California" (Horn). Unquestionably a desert species.

Cryptohypnus.—*C. squalidus*, rare; found by washing the gravelly margins of mountain streams near Pomona: *nocturnus*, found in the north: *funebris*, recorded by Horn from "California and western Nevada;" it is probably confined to the middle Sierras in this State.

Hypnoideus.—All the species occur along streams in the mountains and foot-hills. *H. striatulus* has occurred but once near Pomona, in May: *gradarius* is not common; Pomona, Riverside, San Bernardino; April and May: *ornata*, common at times and quite widely dispersed: *pectoralis*, plentiful almost everywhere.

Anchastus.—*A. cinereipennis*, a rather common species, occurring under sticks and stones, about the roots of grass, at foot of trees, etc., near or within towns and cities, from San Diego to the northern portions of the State: *bicolor* var. *desertus* has been taken at Yuma: *tantillus* and *regularis* are said to be from California, but I have never seen specimens; they are doubtless northern, and one or both may be nothing more than a variety of *cinereipennis*, which is somewhat variable.

Elater.—*E. hepaticus*, a single example taken by sweeping, near Pomona, June: *fastus*, "Southern California" (Le Conte); I am unable to ascertain the exact locality of a pair collected by Morrison, but very likely they are from the southeast: *cordifer*, not common, under bark of decaying stumps; Pomona, Ojai Valley, March and April: *ater*, a single specimen obtained in the San Bernardino Mountains, under bark, in July: *longicornis*, Santa Ana River (Le Conte); I have seen only the type: *carbonicolor*, a single specimen so referred was taken by sweeping, in the foot-hills near Pomona, in June: *dimidiatus*, this species under the name *affinis*, which was given by Le Conte to a form which differs in no respect except in the black portion of the elytra involving the apical third instead of half, is reported from "Washington Territory and Southern California;" I have found it in the Lake Tahoe region, and its occurrence in the mountains further south is not surprising. *E. rhodopus* is not rare under bark of decaying logs, in northern part of the State and Oregon: *mœrens* is also northern: *melinus*, *phelpsii*, *cordatus*, *behrensii*, and *apicatus* are found in the middle Sierras and extend their range more or less to the north: *horni* and *atripennis* are given as Californian, but without indication of locality. There is little doubt that in collections more than one species is now included under the name *apicatus*, and it would not be surprising if the Californian specimens now so called were distinct.

Elatrinus.—*E. anthrax*, "California." A specimen in once taken in some numbers at the latter place on flowers of "greasewood," in June: *aterrimus*, beaten from pines in the San Bernardino Mountains, but not common: *elegans*, "occurs in the southern Coast Range" (Horn); Monterey (Rivers): *stigmosus*, common on pines in the San Bernardino Mountains: *nigriventris*, northern part of the State: *4-maculatus* and *lepidus*, central part of the State.

Ludius.—*L. lecontei*, not common, under bark of logs or stumps; Riverside, Pomona, San Diego, Santa Barbara, etc.: *ater* occurs at Santa Barbara.

Agriotes.—*A. imperfectus*, "Southern Coast Range" (Le Conte): *hispidus*, not common; Pasadena, in May, by sweeping; San Bernardino Mountains, July; San Bernardino, under bark of eucalyptus within the city, December: *fucosus*, *apicalis*, *thevenetii* and *torquatus* occur in the mountains from Yosemite Valley north.

Dolopius.—*D. lateralis* is everywhere abundant and excessively variable.

Melanotus.—*M. longulus*, San Diego (Le Conte): *fissilis*, Yuma (Wickham): *cribricollis*, "Southern California and Arizona:" *variolatus*, San Pedro and Catalina Island; uncommon. An undescribed species is rather plentiful at times, especially on willows in spring; Pomona, Riverside, Pasadena. *M. oregonensis* appears to be a rather common species from San Francisco north.

Limonius.—*L. mirus*, San Diego (Le Conte): *crotchii*, one specimen found crawling on the sidewalk at Pasadena, April 4: *occidentalis*, several specimens obtained by beating, in the foot-hills near Pomona, May. A species once determined for me by Dr. Horn as *infuscatus*, but which on comparison with a typical specimen of the latter in the Le Conte Collection seems to be distinct, is found quite frequently on willows in spring at Pomona, Riverside, Pasadena, etc. *L. ornatulus*, San Bernardino Mountains, June (Daggett): much commoner farther north: *pilosus*, described from San Diego; my specimens are from Sonoma County: *californicus*, widely diffused and generally common: specimens were dug out of a dead log at Pomona in February: *canus*, described from San Diego: my specimens are from San Francisco; it seems quite uncommon, at least in the south. Of the other species of the genus occurring within the State,—*fulvipes* is rather rare about San Francisco: *maculicollis* is found in the middle Sierras and north; *consimilis* in Santa Clara County, *nitidulus* in the north, and a species near *discoideus*, and now passing as that, in Kern and Sonoma counties.

Pityobius murrayi.—This species occurs, but not over abundantly, from Marin County north.

Athous.—*A. excavatus*, not rare, by beating and sweeping in the foot-hills, and at higher altitudes of the southern Sierras: *limbatus*, rare in the San Bernardino Mountains: I have also taken it at Lake Tahoe. Two undescribed species have been taken in our district: one of them common in the San Bernardino Mountains;

Sericosomus.—*S. debilis* is rather common; taken by beating and sweeping, in the foot-hills near Pomona, April. I am unable to separate *flavipennis* Mots from *debilis*. The former name is in general use for the smaller, paler specimens, and the latter for larger specimens with the thorax more or less dark; there are, however, all degrees of size and color between the extremes.

Corymbites.—This genus is numerously represented in the State, but very few species occur in our district. *C. maurus* is rare in the foot-hills near Pomona in June: *jaculus* is described from San Diego, but also occurs in the north (Sylvania): of *fallax* I have seen specimens labeled "So. Cal.," but have never taken the species here myself; it is certainly more common in the north. I have seen specimens of *pruininus* and *leucaspis* labeled southeastern California in the Horn Collection. Of the other species occurring within the State, *cribrosus*, *semivittatus*, *rotundicollis* and *conjungens* have been taken about San Francisco, the latter also in the middle Sierras; *anthrax* and *colossus* are from the central region; *monticola*, *fraternus*, *æripennis*, *carbo* and *obversus* from the middle or northern Sierras; *nigricollis*, one example from Lake Tahoe; *edwardsii* from Santa Cruz and Placer counties and north; *breweri* from Visalia and north; *fusculus*, *caricinus*, *xanthomus*, and *opaculus* from the northern region only; *obscurus*, *teres* and *rupestris* from "Cal." without definite locality. Besides these there are several undescribed species in collections.

Oxygonus.—*O. ater* is described from Amador Valley, central California.

Asaphes.—*A. morio* and *A. dilaticollis* are rare in the San Bernardino Mountains in July and August:

tumescens is recorded from Santa Cruz Island: *hirtus* and *carbonatus* occur near San Francisco.

Melanactes—*M. densus* is not common at San Bernardino, Riverside, Pomona, etc.; found under bark and in decaying trees and stumps, in April and May.

Aphricus.—*A. californicus* is occasionally found at Pasadena and Pomona, by sweeping weeds and herbage by roadsides, May to August. According to Horn it has been found from San Diego to Owens Valley.

Aplastus.—*A. angusticollis* was many years ago taken in numbers at San Diego by Mr. Crotch; it has since been taken sparingly at the same place, in April, by Mr. Dunn: *corymbitoides* is a rare species which has been found at Riverside and Los Angeles: *speratus* is rather common at Pomona, where on warm evenings in May and June the males may be taken on the wing or at light; the females are wingless and are very seldom discovered: *tenuiformis* is described from "Cal.," and is probably from the central region: *optatus* has been found at Fresno, and in Alameda and Santa Cruz counties: *molestus* is recorded from near San Francisco.

Plastocerus.—*P. schaumii* is rather widely diffused and rather common at Pomona, Pasadena, etc., in June,

Perothops.—*P. witticki* is rare in the central region, and has been taken sparingly at Kaweah, in Tulare County, by Mr. Hopping.

Cerophytum.—*C. convexicolle* is described from Fort Tejon; it is evidently a very scarce insect.

THROSCIDÆ.

Aulanothroscus.—*A. validus* occurs in the middle Sierras.

Throscus.—*T. sejunctus* was described from Mojave; a specimen in my collection from Long Beach is so referred: *parvulus* is recorded from "Mojave and Yuma" (Horn): *sericeus* is common and quite widely dispersed: *mendax* is found in the Sacramento Valley.

Pactopus.—*P. hornii* has been found in some numbers flying at twilight about board piles in the San Bernardino Mountains, July.

BUPRESTIDÆ.

Gyascutus.—*G. planicosta* was found in abundance at Needles by Mr. Wickham: *obliteratus* has occurred at San Bernardino in June (Fényes), at Banning, on flowers of mesquite, July 3 (Van Dyke), and is reported as being plentiful on low willows in Owens Valley (Horn): *cuneatus* was described from a single specimen taken with the preceding species in Owens Valley.

Hippomelas.—*H. californicus*, Banning, July 3 (Van Dyke); described from San Joaquin Valley.

Chalcophora.—*C. angulicollis* is not rare at Lake Tahoe and north.

Dicerca.—*D. californica* has been found on Echo Mountain and on Mt. Wilson (Los Angeles County), and according to Van Dyke depredates on Douglas Spruce: *hornii* is not rare in the foot-hill cañons of the southern Sierras and at Santa Monica; I have taken the beetles from their burrows in alder stumps: *pectorosa* has been taken at Acton, Los Angeles County, by Coquillett (fide Van Dyke).

Pœcilonota.—A specimen referred with some doubt to *ferrea* was taken by sweeping the herbage along a small brook near Pasadena in August.

Buprestis.—*B. gibbsii* has been found in San Diego County (fide Van Dyke); specimens in Mr. Rivers' collection were taken in Yolo County: *læviventris*, *maculiventris* var., and *aurulenta* occur in the San Bernardino Mountains in July; the latter is the most common and ranges north to Vancouver: *fasciata* is represented by a single specimen taken by sweeping beside a brook in the San Bernardino Mountains, at an altitude of 5000 feet: *connexa* occurs in Owens Valley: *adjecta* is found in the middle Sierras (Lake Tahoe) and north.

Melanophila.—Of *M. consputa* several examples have been taken by Dr. Fényes and myself about the streets and on windows at Pasadena, September to November: *acuminata*, which name is now used for *longipes* Say, is reported from Santa Monica by Van Dyke: *gentilis* and

and so far as I know is found only at altitudes of 4000 feet and upward in the southern Sierras; it is found at lower altitudes further north. There are in Mr. Ulke's collection two examples of *quercata* said to have been taken in California.

Chrysobothris.—*C. octocola* has been taken at Indio and along the Colorado River, and is likely to be found wherever there is mesquite, in which it breeds: *debilis* also breeds in mesquite (Van Dyke); I have taken it at Palm Springs in April, and Dr. Van Dyke has found it at Banning from May to July: *femorata* has been taken in the San Bernardino Mountains by myself, and Dr. Blaisdell reports finding both pupæ and beetles in their burrows in the bark of the trunk of the live-oak (*Quercus agrifolia*), at San Diego. Dr. Blaisdell also records the breeding of "*semisculpta*" (now placed with *contigua*) from the half dead limbs of apple and live-oak; San Diego. *C. cuprascens* is very abundant on pines in the San Bernardino Mountains, in July and August: *speculifer* has been taken at Pasadena, by Dr. Fényes, in May: *californica* is not common, on pines in the San Bernardino Mountains, August; specimens have been taken by me from their burrows in the smaller branches of *Pinus ponderosa* (?); Dr. Blaisdell reports this species as being very injurious to apple trees at or near San Diego. *C. mali* is widely distributed and seemingly variable in habits. Horn says in his monograph of the genus, "Specimens from the Sacramento Valley were sent me by Mr. L. E. Ricksecker as infesting apple trees; others collected in Owens Valley could not possibly have had that habit." Dr. Van Dyke writes me that he has found it at Banning on mesquite, and at Santa Monica Cañon on *Ceanothus;* while I have myself taken it at Pomona and

Riverside, beating it on one occasion from live-oak. *C. deserta* occurs on the Mojave Desert and near San Diego (Horn): *merkelii*, Banning, May to July, on mesquite (Van Dyke): *prasina*, one example (Fényes), Pasadena: *lucana*, Pasadena, one specimen taken on sidewalk (Daggett): also at Santa Monica, on flowers (Van Dyke). Other species that are known from the State are as follows: *viridicyanea*, *dolata*, *ludificata*, *trinervia*, *nixa* and *æneola* are from the middle Sierras; *deleta* from Owens Valley; *cyanella* from Shasta region; *texana* from "Cal.," probably the southeast.

Actenodes.—*A. mendax* occurs at Yuma, and *calcarata* must also be from the desert region of the southeast. The species which has stood on our lists as *Belionota californica* Mots. is now referred to *Actenodes acornis* Say; I am not able to name the locality from which specimens have been obtained.

Glyptoscelimorpha.—*G. marmorata* has thus far been taken only at Lancaster, on the border of the Mojave Desert. We owe its discovery to Mr. Coquillett.

Dystaxia.—*D. murrayi* is an uncommon insect which has, however, been found at numerous localities. Mr. Coquillett has taken it at Lancaster, Dr. Van Dyke at been taken at Pasadena in May and June, on oak woodpiles; it is reported by Mr. Coquillett as breeding in oak.

Acmæodera.—This genus is very numerously represented in California, and of the thirty-two species recorded from the State all but three—*mariposa* from the middle Sierras, and *robusta* and *pubiventris* from Owens Valley—are found in our district. It is more than likely that these three species will eventually be found here. The various species are taken on flowers in May and June, but their breeding habits are almost unknown. According to Van Dyke, *dohrnii* breeds in *Ceanothus* and *gibbula* in mesquite. The following species have thus far been taken only in the Desert region of the east and southeast: *flavomarginata*, *lanata* (Los Angeles and San Bernardino counties), *tuta* (Death Valley), *variegata*, *quadrivittata* (Mojave). Of the remaining species, *fenyesi* is not rare at various localities in Los Angeles, Riverside, and San Bernardino counties; *plagiaticauda*, rare, Mariposa and Los Angeles counties: *jocosa*, foot-hills of the southern Sierras, Pomona and Pasadena; *coquilletti*, " Los Angeles County" (Coquillett); *angelica*, foot-hills of Sierras in Los Angeles County and north to Lake County; *hepburnii*, rather common west of the Sierras nearly throughout the State; *morbosa*, Pomona and Pasadena, foot-hills, rare; *flavosticta*, Riverside and San Diego County; *acuta*, *labyrinthica*, and *connexa* are all common and widely dispersed in and to the west of the Sierras, the last named, however, is seldom found in our district except at considerable altitudes in the Sierras; *vandykei*, scarce in Los Angeles County, more frequent further north; *prorsa*, Los Angeles and San Bernardino counties; *dohrnii*, rare in the southern Sierras (Los Angeles

County); *dolorosa* and *postica* are known only from Los Angeles County, the latter being represented by a single specimen taken by Coquillett; *alicia*, one example, Los Angeles County (Coquillett); *versuta*, rare in Los Angeles and Mariposa counties; I have taken the species from yucca blooms in June: *guttifera*, one example taken in Los Angeles County by Van Dyke; *gemina*, Los Angeles and San Bernardino counties to Siskiyou County, but not common; *comata* and *alacris* are described as from "near Fort Yuma."

Ptosima.—One example of *P. walshii* has been taken by Mr. Coquillett in Los Angeles County.

Crysophana.—*C. placida* is rare in the San Bernardino Mountains, where I have beaten it from yellow pines in August.

Agrilus.—*A. angelicus* is a rare species described from one specimen taken in Los Angeles County by Coquillett, and a short series from the Santa Cruz Mountains (National Museum Collection). I have taken one specimen in the San Bernardino Mountains in July, at an elevation of 5000 feet, and have seen several specimens taken by Mr. Daggett at Deep Creek, a point a little farther east in the same mountains, at an altitude of 6000 feet. *A. niveiventris* is common on on flowers at Pasadena in June and July, at Santa Monica (Van Dyke), and at Tehachapi (Wickham): *gibbicollis* is known by a single example taken near San Bernardino in June by Dr. Fényes, and by a single specimen without definite locality in the Horn Collection: *illectus* is found at Pomona and Pasadena by sweeping late in June: *lacustris*, I am told by Dr. Van Dyke, has occurred on white oak at Newhall (Los Angeles County).

Taphrocerus.—*T. gracilis* is introduced on the authority of Van Dyke; Los Angeles County.

LAMPYRIDÆ.

Calopteron.—*C. reticulatum* is recorded from "California" by Le Conte.

Eros.—*E. lætus* is rarely taken in the San Bernardino Mountains.

Calochromus.—*C. dimidiata* occurs in the Mariposa region and in Siskiyou County.

Matheteus.—*M. thevenetii* is from the Mariposa region.

Ellychnia.—*E. californica* is a common and widely dispersed species: *corrusca* is less common than the last, specimens in my collection having been found at Riverside in May.

Pyropyga.—*P. fenestralis* is not rare; specimens are known to me from Riverside, Pomona, Needles and Yuma: *indicta* is described from Lake Tahoe.

Lamprorhiza.—*L. riversi* occurs in Sonoma County.

Microphotus.—*M. angustus* is from central California.

Pterotus.—*P. obscuripennis* is exceedingly scarce in our district, and I have seen but one example from near Pomona; it is more common further north.

Zarhipis.—I have seen one example of ***integripennis*** from Palm Springs (April 10), and one taken at light, at Pasadena, April 14: this and ***ruficollis***, ***piciventris***, and *riversi* are all taken about San Francisco; but it is very doubtful if we have as many species as names.

Mastinocerus.—One example taken at light, at Riverside, June 7, is referred to *opacus*.

Cenophengis.—*C. debilis* has been found at Los Angeles and at Pasadena (July): it is very rare.

Podabrus.—*P. comes* is a rather common species in the southern sierras and in the foot-hills near Pomona and Pasadena. An apparently undescribed species is not rare at Pasadena in May, occurring usually on willows. *P. latimanus* and *P. tomentosus* are both recorded from "Cal.," but it is not likely that they will be found with us as the genus is as a rule northern in distribution: *binotatus* is said to occur at San Mateo: *xanthoderus*, Lake Tahoe: *macer*, San Mateo and Sylvania: *tejonicus*, Tejon: *bolteri*, Lake Tahoe: *mellitus*, Sylvania, Geysers, and Lake Tahoe: *cavicollis*, San Francisco to Lake Tahoe: *corneus* is described from "Cal." without mention of exact locality. *P. lutosus* is the female of *cavicollis*. There are several undescribed species in my

Pomona and Pasadena, by beating willows in May: *ingenuus* is not common; Pasadena, May: *ochropus* is described from San Diego: *lautus* is reported from various localities in our region: *fraxini* is northern: *transmarinus* and *grandicollis* occur in the middle and northern Sierras.

Polemius.—*P. languidus* is described by Horn from the vicinity of San Diego.

Ditemnus.—*D. obtusus* occurs at Riverside in May, but is uncommon.

Malthodes.—*M. laticollis* and *M. fusculus* are common at Pomona, Riverside, Pasadena, etc., on flowers and various trees and shrubs: *fragilis* is described from "Cal.;" I have not yet recognized it.

MALACHIDÆ.

Collops.—*C. marginicollis* was described from San Diego, in which vicinity it appears to be commoner than elsewhere; I have taken it sparingly at Pomona in April, May and September: *cribrosus* occurs on the ocean beaches and on the adjacent sand dunes; it is especially common during April and May at Redondo, and I have also taken it in August at Santa Monica: *argutus* is not rare at Pomona and Pasadena, and I have seen specimens from San Diego and also from Sonoma and Lake counties: *punctulatus* is perhaps our rarest species, single specimens from Pomona and San Diego being all I have seen from our district: *marginellus* is not common; I have taken it at Pomona and San Bernardino in August: *insulatus* is described from California, but I have seen no specimens from our section. Two females of an apparently undescribed species have been taken at Pomona.

Endeodes.—The species of this genus are found only on the sea beaches. *E. abdominalis* is at times quite common at Redondo (April and May): *collaris* is much rarer, in the south at least, and I have found but a single example on Catalina Island: *basalis* has not yet been recorded from our district.

Malachius.—*M. auritus* and *M. thevenetii* are not rare on willow blossoms in early spring; they are generally diffused: *inornatus* occurs at Pomona from March to May: *acutipennis* is not rare at the same place a little later in the season: *prolixicornis* has occurred only at Pasadena, June and July: *directus* is known from Los Angeles County and from the San Bernardino Mountains: *nigrinus* and *pristinus* are, so far as known, found only in the Sierras, at an altitude from 5000 to 7000 feet; the latter has been taken only in Los Angeles County; *nigrinus* ranges from near San Bernardino to Lake Tahoe. The species are all found on flowers, and are to be obtained by sweeping and beating. In addition to the above, the following are found in other parts of the State: *biguttulus*, *mirandus* and *spinipennis* at Fort Tejon; *macer* at Lake Tahoe; and *mixtus* is from "Cal." without more definite statement of locality.

but once, at Redondo in April: *mœrens* is described from "California."

Pseudebæus.—*P. bicolor*, or a closely allied species, is generally distributed and not uncommon.

Attalus.—The various species occur on flowers, and when found may usually be taken in numbers. *A. trimaculatus* is not common at Pomona, but seems more so farther north: *rufomarginatus* is common throughout the foot-hills of the Sierras: *oregonensis* occurs in the same localities as the last, but is rare with us: *basalis* is rather common at Pomona, Pasadena and Yuma: *cinctus* and *difficilis* are described from Yuma: *lobulatus* is common at various places both east and west of the mountains: *transmarinus* is known only from San Clemente Island. There are in my collection several apparently undescribed species from various parts of the State.

Pristoscelis.—Specimens of *P. grandiceps* have been taken at Pasadena (July) by Dr. Fényes; it is a rare insect.

Eudasytes.—Casey described *E. ursinus* from "Southern California," and *amplus* from California simply.

Asydates.—*A. rufiventris* is described from Santa Barbara: *explanatus* is not rare in cactus blooms; Palm Springs (April), and at Yuma in March.

Trichochrous.—According to Casey this genus should be used for the greater number of the species now referred in our list to *Pristoscelis*. He describes very many new species in his late revision; but there are not a few in my collection still evidently without names. They occur abundantly on flowers, as do the most of the species of allied genera. *T. antennatus* occurs at Riverside

(May) if specimens in my collection were properly identified by Casey. *T. griseus*, *T. subcalvus*, *T. suturalis*, and *T. politus* have been announced from San Diego only: *fuscus* occurs in San Diego County, and has been once taken by me at Pomona (April 30): *umbratus* is common in cactus blossoms, at Palm Springs (April). A large series taken by me makes it certain that *fulvovestitus* is the male of *propinquus*, and that both are synonyms of *umbratus*. This species was described from Fort Crook in northern California, and has been collected in the Tempe Desert of Arizona by the late Dr. Griffith of Philadelphia. *T. suffusus*, *T. lobatus* and *T. barbaræ* are described from Santa Barbara; specimens taken by Mr. Daggett in Bear Valley (San Bernardino Mountains), at an elevation of 6400 feet, are identified by Casey as his *seriellus*, described from Utah: *brevicornis* is found at Pomona, Pasadena, Redondo, etc., in spring, being especially common near the coast: *vilis* is not different: *conspersus* is common at Pomona, Riverside, San Diego, etc., March to May: *squalidus*, *sordidus* and *tejonicus* are more or less common at San Diego, Riverside, Pomona and Pasadena; they appear to run into one another, and it is not unlikely that they represent but a single species: *crinifer* occurs at Riverside (May): *fulvescens*, San Diego and Pomona: *nigrinus*, *cylindricus, laticollis, transversus, fulvotarsis, separatus, indigens,* and *hystrix* from the middle coast region; *oregonensis, nubilatus, fallax, sexualis,* and *sonomæ* from the north. The following, recently described by Casey, have no locality other than California: *brevis, agrestis, sinuosus, discipulus, femoralis, fimbriatus, pruinosus, sobrinus, mucidus, curticollis, remotus, tectus, villosus, irrasus, rusticus* and *stricticollis.*

Adasytes.—*A. laciniatus* is described from San Diego.

Listrus.—*E. interruptus* is recorded by Le Conte as occurring on Santa Cruz Island, but I am inclined to believe the reference incorrect; the species is common about Lake Tahoe: *difficilis, luteipes* and *famelicus* are common and generally dispersed in our district west of the Sierras: *obscurellus, extricatus* and *balteellus* are recorded only from San Diego: *definitus* is thus far known only from Pasadena, where a short series was taken in the sweeping net in April by Dr. Fényes: *motschulskii* and *canescens* occur in the central region and north: *rotundicollis, amplicollis, maculosus, pardalis* and *incertus* are recorded from the middle coast region: *interstitialis, densicollis, subæneus, tritus, variegatus* and *montanus* are from the north: *fidelis* is from "California." Several other forms in my collection are apparently undescribed.

Dasytellus.—*D. inconspicuus* is plentiful at Palm Springs (April).

Dasytes.—*D. dissimilis* is found in the higher parts of the Sierras from San Bernardino to Lake Tahoe: *clementæ* is known only from San Clemente Island: *macer* is described from "So. Cal.:" *pusillus,* from San Diego: *musculus* is not rare at Pomona and Pasadena (June):

lineellus is rare, mountains of Los Angeles County: *obtusus*, *breviusculus*, and *seminudus* are found in middle California; the first named I have taken from coniferous trees at Lake Tahoe: *expansus*, *nitens* and *cruralis* are northern: *fastidiosus* and *minutus* are described without definite locality.

Dasytastes.—*D. catalinæ* and *D. insularis* have thus far been found only on Santa Catalina Island. The former is quite common on various flowers in July; the latter has been taken but once (Aug. 1). *D. bicolor* is a common species at Pomona in May and June. A small species found by me on oaks in the San Bernardino Mountains is referred to *remissus*. *D. dispar* occurs north of San Francisco, and *otiosus* is without specific locality.

Eschatocrepis.—*E. constrictus* is everywhere common.

Allonyx.—*A. sculptilis* is an uncommon species; I have taken it at Pomona in June, and at Pasadena early in April. Casey describes *denudatus* from north of San Francisco, and *disjunctus* from "California."

Vectura.—*V. longiceps* is described from Yuma, Arizona; it is probable that the specimens were taken on the California side of the river.

Cymatodera.—*C. puncticollis*, San Bernardino Mountains, on pines; not common; Yuma and country along the Colorado River: *californica*, a rare species, of which I have seen only two examples from Southern California, one from the San Bernardino Mountains, the other from the mountains near Pomona, September: *morosa*, specimens so referred have been taken in Los Angeles County: *punctata*, along the Colorado River: *fuscula*, occurs at Yuma: *undulata* var. *balteata*, Yuma (fide Fuchs): *angustata*, Yuma and various other localities in Southern California: *ovipennis*, Pomona, November; San Bernardino Mountains, July; Catalina Island, July; var. *pilosella*, San Diego.

Aulicus.—*A. nero*, "Collected by Gabb in the South Coast Range" (Horn).

Trogodendron. — *T. edwardsii*, San Diego County (Fuchs).

Trichodes.—*T. ornatus*, rather common in most every locality; the variety *tenellus* is also widely diffused, but aside from Yuma I know of no record of its capture elsewhere in our district: *bimaculatus* is found in the north.

Clerus.—*C. quadrisignatus* occurs along the Colorado River: *eximius* is rare at Pasadena, April; found on willows (Fényes): *abruptus*, specimens which seem to be a slight variety of this species have been seen from Owens Valley: *mœstus*, not rare in the San Bernardino Mountains, on coniferous trees: *sphegeus*, occurs at Lake Tahoe and north.

Thanasimus.—*T. repandus*, Mendocino County (Van Dyke).

Hydnocera.—*H. robusta*, Owens Valley (Horn): *scabra*, rather common throughout the southern Sierras and the adjacent region: *discoidea*, Palm Springs, April; Colorado River (Le Conte): sp. near *pallipennis*, one example, Pomona: *bicolor*, Colorado River (Le Conte).

Chariessa.—*C. elegans*, one example taken at an altitude of over 6,000 feet in the Sierras, in Los Angeles County, by Mr. Daggett, is the only instance known to me of the capture of this beautiful insect in Southern California. *C. dichroa*, Los Angeles County (Coquillett), is described from Sacramento.

Cregya.—*C. fasciata* is described from San Diego. A specimen with entirely piceous elytra taken by me in the San Bernardino Mountains is probably a mere color variety. The species also occurs in northern California.

Lebasiella.—*L. maculicollis* occurs sparingly at Pasadena and Pomona late in May and early in June.

Corynetes.—*C. rufipes* occurs everywhere: *ruficollis*, the only specimens seen from our district were taken early in June on San Clemente Island.

PTINIDÆ.

Trigonogenius.—*T. farctus* is not rare at San Fran-

March. Specimens of *brunneus* are labeled "Cal." in the Le Conte Collection, and Horn cites *pygmæus* Gorh. from California in his list of the Coleoptera of Lower California.*

Hedobia.—*H. granosa*, not rare, Pomona, Pasadena, Ojai Valley; March to April; chiefly found on live-oak.

Ernobius.—*E. debilis*, Santa Barbara and Santa Cruz Island (Le Conte). An apparently undescribed species near *punctulatus* has been taken abundantly on pines in the San Bernardino Mountains. Another undescribed species occurs also on pines about Lake Tahoe. *E. punctulatus* is described from the northern coast region, and *alutaceus* from "Cal."

Ozognathus.—*O. cornutus*, Pomona, Pasadena, Riverside, February to May: *misellus*, San Diego. The original specimens of the former sent to Dr. Le Conte were said to have been hatched from galls.

Xestobium.—One example of an undescribed species, taken at Pomona in May: *affine* is recorded from "Vancouver and California."

Oligomerus.—Three species doubtfully congeneric are for the present referred here. One is not rare on Catalina Island; found by beating *Heteromeles arbutifolia*; a second occurs on *Quercus agrifolia* at Pasadena in June; the third is represented by a solitary example found dead among the sand-dunes near the beach at Santa Monica.

Sitodrepa.—*S. panicea* is more or less frequent everywhere in houses. I raised a nice crop once from a lot of European Coleoptera received from France.

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* Proc. Cal. Acad. Sci., 2d Ser., Vol. IV, 1894, p. 332.

Ctenobium.—One example of an undescribed species taken at Riverside at electric light.

Ptinodes.—*P. setifer*, San Diego; the type alone is known to me.

Hadrobregmus.—*H. gibbicollis*, Pomona, San Bernardino Mountains; June and July; not common. One specimen of an undescribed species near *foveatus* was taken at Lake Tahoe.

Trichodesma.—*T. cristata*, middle California.

Anobium.—*A. quadrulum*, Lake Tahoe and north.

Trypopitys.—*T. punctatus*, Los Angeles, Riverside, Pomona, Pasadena, etc.; July and August: *temulineata*, one example, Catalina Island.

Petalium.—*P. bistriatum* is not rare in the southern Sierras.

Theca.—*T. striatopunctata*, "Cal." (Le Conte).

Vrilletta.—The three species on our list—*convexa*, *expansa* and *murrayi*—are described by Le Conte from California without definite locality; I have seen only *convexa* from our district, but all may occur there; *expansa* is not uncommon near San Francisco.

Xyletinus.—Specimens both black and brown, identi-

(Le Conte): *luteolectus*, Riverside and Yuma, July; Palm Springs, April: *palliatus*, not rare on a species of *Dalea* at Yuma early in June. Our commonest species, which occurs pretty nearly everywhere, and most frequently on oaks, is not yet identified; it is possibly not different from *obsoletus*, which was described from Cape San Lucas, but it would not be proper to so call it without careful comparison with the type. There appear to be two other allied species in my collection from Pomona and Pasadena, but they are not sufficiently strongly characterized to warrant their description in advance of a general synopsis of the genus. *H. integer* is represented by two examples taken by me at Lake Tahoe.

Cœnocara—*C. californica*, one example from the Sierras near Pomona, September: *occidens*, described by Casey from central California.

Ptilinus.—*P. basalis*, San Diego (Le Conte): *ramicornis* has been beaten from *Quercus engelmanni* at Pasadena late in May, and also occurs in the San Bernardino Mountains: *flavipennis* occurs in the southern Sierras, in Los Angeles and San Bernardino counties: *acuminatus* is described from the Santa Cruz Mountains.

Euceratocerus.—*E. pleuralis*, *E. macer*, and *E. saginatus* are described by Casey from California; the first mentioned from the Santa Cruz Mountains, the others without definite locality.

Sinoxylon.—*S. sericans*, Colorado River: *sextuberculatum*, Yuma; "probably depredates on mesquite" (Horn): *declive*, Pomona, August and September; numerous specimens taken on the windows of a winery; one specimen was taken on San Nicolas Island, May 23: *suturale*, rare at Pasadena (Fényes).

Bostrychus.—A single specimen of *B. californicus* was secured in the San Bernardino Mountains in July.

Amphicerus.—*A. fortis*, Colorado River: *punctipennis*, Riverside, Redlands, Pomona, Long Beach; June to October; often taken at electric lights: *teres*, Yuma; unknown to me.

Dinapate.—*D. wrightii* is a mammoth Bostrychide known only from the cañons leading up from the western borders of the Colorado Desert, at and near Palm Springs, where it depredates on the Washingtonia palms (*Neowashingtonia filifera*). It was originally discovered by Mr. W. G. Wright, and has since been found by Mr. H. G. Hubbard, whose most interesting letters to Mr. E. A. Schwarz, describing the rediscovery, with much information concerning the larval habits, have been recently published by Mr. Schwarz.

Dinoderus.—*D. pacificus*, San Bernardino Mountains, not rare: *sobrinus*, from the same locality; scarce: *truncatus*, "California" (Horn).

Polycaon.—*P. stoutii* is common throughout maritime Southern California; once taken in numbers from beneath the loose bark of eucalyptus in early summer: *confertus* is also widely diffused; it depredates on grape [illegible]

CUPESIDÆ.

Priacma.—I have seen one example of *serrata* in the collection of Professor Rivers, said to have been taken at Grass Valley in the Middle Sierras.

Cupes.—*C. lobiceps*, San Diego; apparently very rare.

CIIDÆ.

Cis.—*C. versicolor*, *C. vitulus*, and *C. duplex* are all common in dry, woody fungi at Pomona, Pasadena, Ojai Valley, and probably throughout maritime Southern California. Casey also describes *illustris*, *impressa*, and *soror* from northern California, and *macilenta* and *hystricula* from Lake Tahoe.

Orthocis.—*O. aterrima*, Alameda County.

Plesiocis.—*P. cribrum* is not uncommon in the Sierras from Calaveras County to San Bernardino County.

Ennearthron.—*E. grossulum* and *E. convergens* are described from Southern California. Specimens of what is doubtless one of these species occur plentifully in various localities near Los Angeles. *E. californicum* is said to especially frequent the northern coast region, while *discolor* is described from Sonoma County.

Octotemnus.—*O. denudatus*, San Francisco to Vancouver.

SPHINDIDÆ.

Odontosphindus.—*O. clavicornis*, one example, San Bernardino Mountains, July.

LUCANIDÆ.

Sinodendron.—*S. rugosum* is a rather common species from the Santa Cruz Mountains, north, but I have no other record of its occurrence within our district; El Monte (Los Angeles County) teste Rivers. I know of no record of any other species of this family having occurred in our district. In the genus *Platycerus*, *oregonensis*, *agassii*, *californicus*, *parvicollis*, *pacificus*, *thoracicus* and *chalybæus* are all Californian. *P. oregonensis* has occurred as far south as Tejon, but the true habitat of the genus is more northern. *Ceruchus punctatus* and *C. striatus* occur in middle and northern California.

SCARABÆIDÆ.

Canthon.—*C. simplex* is widely diffused and generally common; the variety *humeralis* is rare. It is probable that the varieties *corvinus* and *militaris* occur in our region but I have no specific reference to the fact. *C. lævis* and *C. perplexus* are recorded respectively from "So. Cal." and "Cal.," but there can be little doubt that they were taken in the desert regions of the southeast.

Copris.—*C. mœchus*, Los Angeles; one example taken by Dr. W. J. Karlsioe (fide Linell).

Oniticellus.—*O. californicus*, Shasta region; very scarce.

diffused: *cælatus* occurs only along the sea-shore; it is tolerably common at Redondo and Santa Monica.

Pleurophorus.—*P. cæsus*, Lake County (Van Dyke).

Rhyssemus.—*R. californicus*, Riverside, April; not common.

Atænius.—*A. desertus*, Yuma: *abditus*, everywhere abundant: *gracilis*, Pomona, Palm Springs, Yuma; widely diffused but much less common in California than the preceding: *californicus*, San Bernardino, Yuma; common at the latter place in July: *lobatus*, Palm Springs; not common. *A. oblongus* is described from "California," but I am unable to ascertain the exact locality.

Aphodius.—*A. granarius* is quite common at Pomona from January to April; it is generally diffused: *lividus*, Yuma, Pomona, Los Angeles; not frequent: *rugifrons*, common under rubbish at Pomona after the first soaking rain in Nov. or Dec.; seldom seen later than Feb.: *consociatus*, Bear Valley (San Bernardino Mountains), June (Daggett): *subæneus*, Los Angeles County; not common: *alternatus*, Yuma (Horn): *cribratus*, one example taken at or near Santa Monica by Mr. Max Albright: *ochreipennis*, Owens Valley (Horn): *rubidus*, rather common at Riverside, Pomona, Pasadena, etc., from Dec. to May: *militaris*, rare at Pomona and Pasadena, May: *coquilletti*, Los Angeles County (Coquillett): *luxatus*, Santa Barbara and Long Beach, Feb. to April; rare: *ungulatus*, taken thus far only during Dec. and Jan. at Pomona and Pasadena; not common: *pardalis*, Ojai Valley, March; rare in Southern California but commoner farther north. Numerous other species occur within the State limits. Of these, *conspersus*, *congregatus*, *aleutus*, *pectoralis*, *[illegible]* and *sparsus* inhabit the region to the north of San Francisco; *gentilis* and *inutilis* occur about San Francisco; *vicinus* at San Francisco and at Lake Tahoe; *sparsus* in the Mariposa region, and *ovipennis* at Fort Tejon. Since the above was written a specimen of *vicinus* has been taken at Pasadena by Dr. Fenyes (February).

Ochodæus.—*O. californicus*. Pomona and Pasadena; very scarce; four specimens only are known, taken on the wing in April and May.

Pachyplectrus.—*P. laevis*, described from Santa Barbara. I have seen no examples from California except the type, but have seen two or three specimens which were taken at Phœnix, Arizona, by Dr. H. G. Griffith of Philadelphia.

Bradycinetus.—*B. serratus*. Yuma; *horni* is rare in the country about San Francisco.

Odontæus.—*O. obesus* occurs near San Francisco.

Geotrupes.—*G. occidentalis*, exceedingly scarce, occurring in the region to the east of Visalia.

Pleocoma.—*P. puncticollis*. San Diego County (Julian ?); *fimbriata*, *behrensii*, *hirticollis*, *staff*, *rickseckeri*

Amphicoma.—The only specimens of *edwardsii* from Southern California that I have seen were taken by Dr. E. C. Van Dyke in the Santa Monica Mountains. *A. canina* is not infrequent in the Southern Sierras. Professor Rivers reports finding a single example of *ursina* on the sand-dunes at Santa Monica; it is not rare in similar situations near San Francisco: *cooperi* occurs at Sacramento in early July: *rathvoni*, the middle Sierras.

Oncerus. — *O. floralis*, San Diego County, Palm Springs; occurs on flowers during April at the latter locality.

Hoplia.—*H. sackenii*, San Diego (Le Conte); Sylvania (Ricksecker): *callipyge*, not abundant at Pomona, on flowers of greasewood; May and June: *pubicollis*, not rare at Riverside during April and May, on willows along the Santa Ana River: *dispar*, common from Lake Tahoe to Siskiyou County. Specimens of two apparently undescribed species have been taken by Dr. Fényes and myself at Castle Crag and Lake Tahoe respectively.

Gymnopyge.—*G. hopliæformis*, Mojave Desert (Coquillett).

Dichelonycha.—*D. crotchii*, San Bernardino Mountains, July; more common in the middle Sierras: *fuscula*, plentiful in the foot-hills near Pomona, etc., on flowers of greasewood; June: *truncata*, Pomona, Palm Springs, San Bernardino Mountains; April to July: *pusilla* occurs with the two preceding species in the foot-hills near Pomona, but unlike them is also frequently taken within the town itself, especially about roses: *pallens* and *clypeata* are northern and appear to be not often taken: *fulgida* and *valida* are more or less common throughout the middle Sierras. There are also in my collection three seemingly undescribed species, one of which comes from San Diego and is the smallest species in our fauna.

Cœnonycha. — *C. rotundata*, Yuma, Riverside, two examples in March; a rare species: *socialis*, specimens I have seen were said to have been taken in San Diego County.

Serica.—*S. fimbriata* and *S. mixta* are both more or less abundant throughout Southern California in early summer, when they are often seen on the wing in the early evening: *elongatula*, several specimens taken under dead leaves in Ojai Valley, March: *alternata*, Los Angeles and San Diego counties; less frequent than *mixta* or *fimbriata*: *anthracina* occurs in middle and northern California: *valida* is probably not different.

Plectrodes.—*P. riversi*, generally not common but occasionally attracted in numbers to light; Pomona, July: *carpenteri*, Los Angeles and Mojave Desert: *palpalis*, specimens so called are occasional in the vicinity of Los Angeles: *blaisdelli* is not uncommon near San Diego: *squamosa*, from San Bernardino: *fossiger* and *pistoria* are described by Casey from Los Angeles light, at Palm Springs. I have seen a few specimens of a larger species taken in Placer County that seems to be undescribed.

Lachnosterna.—*L. errans*, middle California; described from Contra Costa: *lenis*, desert regions of the southeast.

Listrochelus.—*L. mucoreus*, Yuma.

Polyphylla.—*P. decemlineata* and *P. crinita* are both fairly common; the former at lights in the towns, the latter at altitudes of 4,000 feet and over in the Sierras.

Thyce.—*T. marginata*, San Diego County. I have seen one specimen taken at Oceanside by Mr. F. D. Twogood.

Phobetus.—*P. comatus* is generally scarce; once taken in some quantity at electric lights, in Pasadena, April; occurs also on Catalina Island, San Diego County, and in the San Joaquin Valley.

Anomala.—One example of *centralis* was taken at Palm Springs.

Cotalpa.—*C. ursina*, very abundant at Pomona, San Bernardino, etc., in spring, flying by day and often seen in quantities clinging to the cypress hedges about the city. *C. granicollis* is reported as having been taken in the Argus Mountains by the Death Valley Expedition.

Cyclocephala.—The species of this genus are to be seen flying in the evening about the city streets, and are sometimes attracted to lights in large numbers. *C. immaculata*, *C. longula*, and *C. villosa* are most common: *hirta* is scarce: *dimidiata* while not frequent at light is not rare in the blossoms of *Datura metelloides.*

Ligyrus.—*L. gibbosus* is abundant and widespread.

Euphoria.—*E. verticalis*, from southeastern region; not common.

Cremastochilus.—*C. wheeleri*, described from Eldorado County, but said by Fuchs to have been taken by Dunn in San Diego County: *ineptus*, Yuma (fide Fuchs): *schaumii*, San Diego, Pasadena, not frequent: *westwoodi*, Owens Valley: *pilosicollis*, San Bernardino, April; more common farther north: *crinitus*, San Diego, collected by Dunn (fide Fuchs): *planatus* occurs in the Coast Range south of San Francisco: *angularis*, about San Francisco and in the middle Sierras.

Valgus.—*V. californicus*, central and northern portions of the State; rare.

SPONDYLIDÆ.

Parandra.—I have not yet seen native living specimens of *brunnea*, but once found the remains of several about sycamore stumps at Pasadena.

Spondylis.—*S. upiformis* is at times not uncommon about pines in the San Bernardino Mountains.

CERAMBYCIDÆ.

Ergates.—*E. spiculatus* is quite common in the southern Sierras above 4,000 feet, where the larva infests the roots and stumps of various coniferous trees; it is occafoot-hills and at moderate altitudes in the Sierras. The larva lives in decaying roots of live-oak *(Quercus agrifolia)*.

Trogosma.—*T. harrisii* is not uncommon in the middle Sierras. The larva is reported as depredating on *Pinus contorta*. *T. pilosicornis* is described from Mt. Diablo, near San Francisco.

Asemum.—Specimens referred to *nitidum* have been taken at an altitude of 6,000 feet in the Sierras in June; larva has been found in decayed *Pinus insignis* (Rivers): *atrum* has been taken in the middle Sierras and on Mt. Whitney, at 11,000 feet altitude (Daggett).

Tetropium.—*T. velutinum*, labeled "Cal.," must be northern.

Decentrus.—*D. blüthneri*, redwood forests, north of San Francisco.

Hylotrupes.—*H. amethystinus*, San Bernardino Mountains, Bear Valley; rare (Van Dyke): *ligneus*, common; depredates on pine. A nearly black variety has been taken on wood-piles in the middle Sierras (Placer County) by Mr. Van Dyke, who writes that this melanotic form is found only on fir wood-piles that are situated in the forests and are more or less in the shade, while the type-form occurs on pine and spruce wood-piles in sunny situations.

Phymatodes.—One example of *blandus* was beaten from pine in the San Bernardino Mountains: *obscurus*, San Diego, on live-oak from the branches of which it has been bred by Dr. F. E. Blaisdell: *decussatus*, one example beaten from *Quercus engelmanni* at Pasadena, May 31: *juglandis*, Los Angeles County; depredates on *Juglans* *californica*: *æneus*, *nitidus*, and *vulneratus* occur in the central and northern parts of the State: *obliquus* in Santa Clara County.

Callidium.—*C. antennatum*, Mt. Wilson, Los Angeles County (Van Dyke): *hirtellum*, San Bernardino Mountains: not very common: *vile*, described from "Cal.;" it is doubtless from the north. Le Conte mentions a race of *janthinum* from California.

Xylocrius.—*X. agassizii* and *X. cribratus* are found in the middle and northern Sierras.

Malacopterus.—*M. lineatus*, Colorado River, above Yuma.

Œme.—I have seen one example of *gracilis* from Ontario (Los Angeles County) and one from Santa Catalina Island: bred from the dead wood of *Quercus agrifolia* at Poway (Blaisdell): *costata* is recorded from "Cal."

Eucrossus.—One example of *villicornis* was taken in the San Bernardino Mountains.

Haplidus.—*H. testaceus*, "Cal."

Brothylus.—One example of *gemmulatus* was taken on Mt. Wilson (Van Dyke).

Aneflus.—One example of *linearis* taken on Echo Mountain, Los Angeles County.

Pœcilobrium.—*P. chalybæum* was taken on flowers of *Ceanothus*, Pasadena, April. Linell has described *rugosipenne* from "Cal."

Hybodera.—*H. debilis*, one example, Echo Mountain, Los Angeles County.

Callimus.—*C. cyanipennis*, Los Angeles County, on *Ceanothus* bloom. *C. ruficollis* bears a label in the Horn Collection indicating its occurrence in Southern California; it is not rare about San Francisco.

Megobrium.—*M. edwardsii* is described from Santa Rosa Island. I have one example beaten from live-oak near Pomona, Oct. 27.

Molorchus.—*M. longicollis*, Los Angeles County, on flowers.

Callimoxys.—*C. fuscipennis*, Los Angeles County (Van Dyke); very abundant further north.

Holopleura.—*H. helena* is very rare in Southern California, but has been bred in quantity from dead twigs of *Umbellularia californica* from near San Francisco, by Professor Rivers; Santa Monica (Albright).

Rosalia.—One example of *funebris* was sent me from San Diego County. Mr. W. G. Wright of San Bernardino writes me that he has taken it locally, but it is certainly much more common further north. Professor Rivers records the larva from "decaying *Umbellularia californica* among the mycelia of some fungus."

Dendrobius.—*D. mandibularis* is common on the wing in early evening, about the willows along the Colorado River, at Yuma, in July.

Lissonotus.—*L. multifasciatus*, "Cal., Ariz."

Tragidion.—*T. annulatum*, Pasadena, June; Pomona, September; San Bernardino Mountains (Van Dyke); Santa Monica (Albright); rare. *T. armatum* has been taken at Newhall (Van Dyke), while sucking sap from stalks of flowering *Yucca whipplei*.

Purpuricenus.—*P. dimidiatus*, northern California.

Metaleptus.—*M. angulatus*, "So. Cal.;" doubtless from the southeastern region.

Amannus.—*A. pectoralis*, Yuma (Le Conte.)

Batyle.—*B. suturalis*, San Diego County (Fuchs).

Oxoplus.—*O. jocosus* occurs rather rarely in the foothill cañons near Pomona; found flying by day along the streams.

Crossidius.—*C. hirtipes*, *C. ater*, *C. testaceus*, and *C. punctatus* bear Californian labels in one collection or another, but with the exception of *testaceus*, which, according to Fuchs, has been taken in San Diego County, I have not been able to obtain exact localities. There is not much doubt, however, that they occur only in the eastern and southeastern portions of the State.

Ischnonemis.—*I. bivittatus*, Indio (Van Dyke).

Stenosphenus.—*S. debilis*, several examples, beaten

Xylotrechus.—*X. nauticus*, San Diego, Los Angeles, Pomona (August). According to Blaisdell, "Abundant about live-oak groves during July and August. The larvæ and pupæ have been taken from the dead branches and trunk of the oak. The beetle is both diurnal and nocturnal in habits, becoming active near the middle of the afternoon and continuing so until late in the evening." The larvæ of this insect have also been found destructive to logs of *Eucalyptus globulus*.* *X. obliteratus* is not infrequent about willows, in various localities in Southern California and on Santa Catalina Island, June: *insignis* is the female of this species, as I am informed by Mr. Fuchs, a fact I had suspected, but of which I had no positive evidence: *undulatus* and *annosus* have been found in the north: *planifrons* occurs near San Francisco, where the larvæ may be found in dead branches of willow (Rivers).

Neoclytus.—Several examples of *irroratus* have been picked up on the streets of Pasadena during early September by Mr. Daggett, and I have similarly found it at Santa Barbara late in August: *conjunctus*, *muricatulus*, *balteatus* and *interruptus* inhabit the middle or northern parts of the State.

Atimia.—*A. dorsalis*, Riverside, May and October; uncommon; occurs also in the Sierras, Placer County, April (Van Dyke): *confusa* has been found in California also, according to Henshaw.

Desmocerus.—*D. cribripennis*, "So. Cal.;" the species must be exceedingly rare: *californicus* has been taken in Los Angeles County, on elder, but is, like the preceding, very scarce: *auripennis* has not occurred in our district so far as I am able to learn, but is not so exceedingly rare farther north: it has been bred from the dead wood of *Sambucus glaucus* (Blaisdell).

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* See Blaisdell's account, "Insect Life," Vol. V, p. 34.

Necydalis.—*N. barbaræ*, Santa Barbara; rare (Rivers): *lævicollis*, middle California: taken by Van Dyke and Rivers near San Francisco, where it is found to breed in decayed *Quercus agrifolia*, and in dead *Eucalyptus globulus* (Rivers): *cavipennis* occurs (in the north) at Piedmont, Alameda County, May (Fuchs).

Ulochætes.—*U. leoninus*, San Bernardino Mountains; Glenbrook, Lake County, June (Fuchs): Sisson, Shasta County, June, on yellow pine (Van Dyke). The dried remains of the beetles in their burrows in dead *Pinus ponderosa* have been seen by the writer; the beetles emerge in July, but are scarce or at least seldom taken.

Pyrotrichus.—*P. vitticollis* was taken by Mr. Fuchs at Laundry Farm, Alameda County, in April.

Leptalia.—*L. macilenta*, northern California; Sonoma County (Ricksecker): on willows, in Mill Valley, Marin County, May (Fuchs).

Rhagium.—*R. lineatum* is central or northern; not rare about Lake Tahoe.

Anthophilax.—*A. tenebrosus*, from the southeastern region.

Acmæops.—*A. tumida* is very rare in Southern California; I secured a single specimen on flowers at Pasadena, in April: *falsa*, Pomona, May; Pasadena, May, from between leaves of *Yucca whipplei* (Daggett); Dr. Van Dyke finds it in June on flowers of wild holly. The following species of the genus are found in the middle and northern portions of the State: *subæneu*, *pinguis*, *viola*, *longicornis*, *vincta*, *basalis*, *militaris*, *subpilosa*, *variipes*, *pratensis;* the latter from Mt. Whitney, elevation 8,000 to 9,000 feet (Daggett).

Strangalia.—*S. delicata*, San Bernardino, Pomona, Pasadena, late May to July, on various flowers; not common.

Leptura.—*L. molybdica* is not rare on flowers of *Ceanothus*, Pasadena in April; all specimens found here have the red humeral spot: *læta*, not rare on flowers in the foot-hills of the Sierras, at Pomona, Pasadena, etc., in June; breeds in dead *Quercus agrifolia* (Rivers): *tribalteata*, Mt. Wilson, Los Angeles County; uncommon: *coquilletti*, Los Angeles County: *instabilis*, rare, Pomona, June, in the foot-hills; var. *convexa*, Los Angeles (Fuchs): *sexspilota*, abundant usually on the flowers of greasewood in May and June throughout Southern California: *pernigra*, Mt. Wilson, Los Angeles County (Coquillett): *crassipes*, not common in the San Bernardino Mountains, 5,000 feet elevation, in August; it has been bred from decayed wood of *Umbellularia californica* (Rivers): *valida*, Bear Valley, San Bernardino Mountains; very scarce. Aside from the above, there are numerous species occurring within the State, all of which—except as noted below—are from the more northern parts: *obliterata*, *soror*, *plagifera*, *rubida*, *subargentata*, *impura*, *vexatrix*, *matthewsii*, *grossa*, central and northern Sierras; *propinqua*, Kern River; *carbonata*, *dehiscens*, *sanguinea*, *lætifica* (these last two rare at Kaweah, Tulare County) (Hopping), common farther north; *quadrillum*, *chrysocoma*, *dolorosa*, *behrensii*, Alameda County; *scripta*, *gnathoides*, *cubitalis*. Several undescribed species exist in collections.

Ophistomis.—*O. ventralis*, "So. Cal.;" El Taste, Lower California.

Ipochus.—*I. fasciatus* is not uncommon under bark, and by beating, especially *Rhus*. Blaisdell reports larvæ taken from the wood of *Rhus integrifolia* at Coronado, and *Rhus laurina* at Poway. Larvæ have been found by Coquillett in dead and dry apple twigs. The beetles are abroad from February to Sept.

Monilema.—*M. spoliatum* has been taken by Mr. W. G. Wright, exact locality not stated.

Monohammus.—*M. maculosus* is not rare at Lake Tahoe (Fényes) and north.

Synaphœta.—*S. guexi*, rare at Pomona and Pasadena,

Acanthocinus.—*A. obliquus* and *A. spectabilis* are both found in the higher parts of the southern Sierras, but are more frequent in the middle and northern portions of the range.

Pogonocherus.—Several examples of *crinitus* have been taken at Pasadena by Dr. Fényes, on live-oak, in June. Professor Rivers reports the larva as occurring in dead branches of *Quercus agrifolia*. *P. mixtus* occurs in the middle or northern regions, and I have found *oregonus* at Lake Tahoe.

Lypsimena. — *L. californica* is rare at Pasadena (Fényes); Santa Monica, August (Van Dyke); Yuba County (Fuchs).

Saperda.—A form which passes as *mœsta* is occasionally found in Southern California, on cottonwood trees; I have taken it at Riverside, in May.

Oberea.—*O. schaumii* is rather uncommon; found on willows in the foot-hills near Pomona in June; it has been called *quadricallosa*, a name now regarded as a synonym of the one given above.

Tetraopes.—One of the numerous color varieties of *femoratus* is plentiful on milkweed throughout our region in May and June.

Idœmea. — One example of *californica* was beaten from live-oak, in June, and others were secured at elecric light, at Pasadena, in April.

Methia.—Several examples of an unidentified species were taken at electric light, at Pasadena, in September (Fényes); this is possibly *mormona* Linell.

CHRYSOMELIDÆ.

Aulacoscelis.—*A. purpurea*, Needles (Wickham).

Donacia.—No specimens of this genus have yet been found in our region, but the following six species are known from the central and northern portions of the State: *hirticollis* and *pubescens* from Lake County (Van Dyke); *cincticornis* var. *proxima* and *subtilis*, from Marin County; *pusilla* and *emarginata*.

Orsodacna.—*O. atra* comes as far south as Lake Tahoe in the more elevated regions of the Sierras.

Zeugophora. — One example of *californica* taken at Pasadena in April (Fényes): *abnormis* I found in some numbers on the leaves of aspens, at Lake Tahoe, in July.

Syneta. — One example of *carinata*, Lake Tahoe: *hamata*, northern: *albida*, occurs as far south as Alameda County.

Thricolema.—*T. anomala*, Calaveras County.

Lema. — *L. nigrovittata* depredates in all stages on *Datura metelloides*; very common.

Euryscopa.—*E. subtilis*, *E. vittata* and *E. lecontei* are all on record as having been found in Southern California: they are probably found only in the southeast.

Coscinoptera.—*C. canella* and *C. mucorea* are not common in the southeast: I have seen specimens of the latter taken at Yuma, in March, by Mr. Daggett;

Chlamys.—A specimen taken at Palm Springs in April, it has not been possible to place with certainty; it is very probably undescribed.

Exema.—*E. conspersa* is common in most localities; taken by sweeping.

Cryptocephalus.—*C. sanguinicollis* is rather common from March to May; Pomona, Pasadena, San Diego, etc.; the variety *nigerrimus* has not yet been seen from our region, but it occurs near San Francisco, though rarely: *castaneus* is not rare at Pomona during May and June: *spurcus* is rather rare; I have seen specimens from Pomona in July, and San Diego in August.

Pachybrachys.—*P. analis*, rare; Arrowhead Springs and San Diego, late in May: *pubescens* (of which *circumcinctus* and *viduatus* are synonyms) is quite common on willows during March and April: *hybridus*, moderately common; Pomona, Pasadena, San Bernardino, San Diego, etc.; May and June; taken by sweeping weeds and bushes near streams and by roadsides: *cœlatus*, San Diego, Yuma, Pasadena, Pomona; June: *livens*, Yuma, Pomona, San Bernardino Mountains; May to October; on *Salix: lustrans* is said to inhabit Southern California: *melanostictus* and *signatifrons* are from the State, without definite locality: *donneri*, recorded from Utah and Lower California; it is, therefore, probable that it is to be found in our district; I have seen specimens from Yreka in this State.

There are many undescribed species in my collection, from various parts of the State, but most of them from the south.

Diachus.—*D. auratus* is everywhere plentiful: *erosus*, not rare about San Francisco (Marin County).

on *Artemisia californica;* the former is very abundant everywhere, the latter generally less common: *diducta* is found in Marin County, also (according to Horn) in western Nevada and adjacent regions: *attenuata* is also occasionally taken in the middle Sierras, Truckee (Fényes).

Galerucella.—*G. nymphœ,* Owens Valley (Horn): *notulata* has occurred in Alameda County: *tuberculata* is quite common in various localities in the middle and northern parts of the State.

Monoxia.—*M. puncticollis* is not common; found along the Southern California seacoast—Santa Monica and Santa Barbara—in August: *consputa* and *sordida,* both quite variable, are plentiful and widely diffused: *debilis* is said to be from "Cal." and doubtless is found in the south.

Diabrotica. — *D. 12-punctata* is found only in the southeast, as is also its variety *tenella*; the latter has been taken at Yuma: *soror* and *trivittata* are everywhere found west of the mountains, the former being one of the commonest of our beetles.

Phyllobrotica.—*P. viridipennis* is not common; taken in the San Bernardino Mountains, in July, by sweeping

Timarcha.—*T. intricata* is northern. I have seen specimens collected by Van Dyke in Mendocino County.

Leptinotarsa.—*L. behrensi* and *L. 11-lineata* are quoted from "So. Cal." in Linell's recent table. I have not seen specimens, but they will be found only in the southeast, if really inhabitants of our region.

Calligrapha.—*C. elegans* var. *californica* is a rare species in Southern California: I have seen small series secured at Pomona and Pasadena, in June; Los Angeles (Van Dyke): *sigmoidea* and *serpentina* are more or less common in the middle and northern parts of the State, the former having occurred as far south as Santa Barbara (Fuchs).

Chrysomela.—*C. inornata*, "Cal."

Plagiodera.—One example of *prasinella*, San Bernardino Mountains; it is more common in Tulare County and about San Francisco.

Gastroidea.—*G. cyanea*, not rare at Pomona in May; probably found throughout the State: the variety *cæsia* occurs near San Francisco.

Lina.—*L. californica*, *L. lapponica*, and *L. scripta* are all common in various localities of middle and northern California.

Gonioctena.—I have a specimen of *pallida* bearing a "Cal." label. If the specimen is really from the State it must be from the north.

Trirhabda.—I have a specimen of *canadensis* from Yosemite Valley; it is probably confined to high altitudes or to the extreme north in this State: *geminata*, San Diego: *caduca*, Owens Valley, Arrowhead Springs, Pasadena, during May and June: *luteocincta* and *flavomarginata* are found both in the larval and mature form

Hemiglyptus.—A small series of *basalis* was obtained by sweeping, near Pasadena, in April.

Crepidodera.—*C. helxines* is found everywhere, on willows.

Epitrix.—*E. cucumeris* is widely diffused and usually common: *subcrinita*, not rare, especially near the seacoast; Santa Monica, February and March: *parvula*, common at Pomona on various weeds about orchards, etc.; April to October.

Leptotrix.—*L. recticollis* is found always in February; Pasadena, Santa Monica, San Diego.

Chætocnema.—*C. opacula*, Los Angeles, August; not common: *subviridis*, Owens Valley: *opulenta*, Owens Valley (Horn), San Bernardino Mountains; not rare, by sweeping, in a meadow at some 6,000 feet elevation: *ectypa* is our commonest species in Southern California—Los Angeles, Pomona, Pasadena, etc., April to November: also at Yuma (Wickham): *cribrata* occurs at Lake Tahoe, July: *irregularis*, San Jose and northward: *subcylindrica*, Lake Tahoe (Fényes): *cribrifrons*, "Cal." (fide Ulke): *denticulata*, "Cal." (fide Horn): *confinis*, middle and northern parts of the State.

Systena.—*S. tæniata* is abundant nearly everywhere, by Dr. Fényes at Pasadena, February: *rufescens* occurs in the northern coast region—Mendocino County. An undescribed species was taken at Yuma, Colorado River, in July, and at Pasadena.

Glyptina.—*G. cerina* and *G. atriventris* are more or less plentiful in most localities west of the mountains; taken by sweeping.

Phyllotreta.—*P. lepidula*, Los Angeles (Fuchs): *vittata*, specimens so referred have been taken on two occasions at Pomona: *albionica*, San Bernardino Mountains, August; Pomona, October and January; not rare, though less frequent than *pusilla*: *ramosa*, rare, Pasadena, June: *pusilla*, common and widespread: *oregonensis*, *denticornis* and *lewisii* inhabit the mountainous regions of the middle and northern parts of the State. One example of an undescribed species has been taken in the San Bernardino Mountains.

Dibolia.—Specimens referred to *ovata* have been found by Mr. Daggett, in Bear Valley, in June.

Psylliodes.—*P. punctulata*, rare, Pasadena, June: *convexior*, rare, Pomona, November.

Microrhopala.—*M. rubrolineata* is common everywhere in our district, at least west of the mountains, on *Heterotheca grandiflora*: *melsheimeri* has been collected in some numbers, by beating *Ceanothus* (?); San Bernardino Mountains, June to August.

Odontota.—*O. californica* is abundant on *Ceanothus*; San Bernardino Mountains, in midsummer; the beetles have been bred by Coquillett from larvæ mining the leaves of *Ceanothus integerrimus*: *rubra*, specimens, doubtless from the north, have been seen.

Stenopodius.—*S. flavidus*, "California (San Diego) and Arizona."

Cassida.—Two examples of *texana* were taken at Pomona, May 5. Coquillett records the finding of both larvæ and beetles on *Solanum xanti*, May 12.

Coptocycla.—*C. aurichalcea*, Pasadena, August.

BRUCHIDÆ.

Bruchus.—*B. pisorum* is not often seen; the writer has taken a few specimens under bark of eucalyptus at Pomona, in winter: *sordidus*, from desert regions of the east or southeast: *ramicornis*, Owens Valley: *limbatus*, Yuma, March (Daggett): *pruininus*, taken sparingly at Pasadena, March (Fényes): *aureolus*, desert regions "on flowers of *Astragalus*:" *pauperculus*, common, taken by sweeping flowers; Pomona, Pasadena, Ojai Valley, etc, March to May: *prosopis*, breeds abundantly in the pods of mesquite (*Prosopis juliflora*), in the desert regions: *protractus*, occurs in the same region as the preceding, also on mesquite: *uniformis*, "pods of *Prosopis* and *Strombocarpus*, desert of Colorado River:" *obtectus*, one example taken in a Los Angeles hotel; it is likely to prove more common than is desirable: *exiguus*, Sierra Madre Mountains (Daggett); I have also seen specimens

Mountains, July; Pomona, September; Pasadena, June: *densus* is credited by its describer to "California." A single example of an undescribed species was taken in the San Bernardino Mountains.

TENEBRIONIDÆ.

Craniotus.—According to Mr. Fuchs, a specimen of *pubescens* was secured by Dr. Blaisdell from near Vallecito, San Diego County.

Edrotes.—*E. ventricosus* is not uncommon on the Colorado Desert; I have taken it under stones at Palm Springs, on the western border of the desert, in April. With typical specimens of *ventricosus* occurred others of duller surface lustre, with coarser punctuation and pubescence less evidently condensed in lines along the elytra; these Dr. Horn considered as mere varieties of *ventricosus*, and if his opinion is well founded probably *nitidus*, described from the Mojave Desert, should be similarly disposed of.

Triorophus.—*T. punctatus* was described from a single dead specimen found at Vallecito: *lævis* is common throughout the Colorado Desert: *subpubescens*, Antelope Valley, Los Angeles County.

Stibia.—*S. ovipennis* and *S. maritima* both occur only near San Diego, so far as is known. According to Dr. Blaisdell, the former "inhabits the seashore and is found beneath the beach-berry (*Mesembryanthemum æquilaterale*) growing upon the sand-dunes," while *maritima* inhabits the Coronado peninsula, and is not confined to the seashore.

Auchmobius.—*A. sublævis* is widely diffused in California, but everywhere very rare; I have taken a single specimen from under a stone in San Antonio Cañon, near Pomona. Horn gives as localities Owens Valley, Tejon, and the southern Coast Range.

Eurymetopon.—*E. rufipes* is plentiful in the eastern or desert portions of Southern California: *fusculum*, Yuma, March (Daggett): *convexicolle*, very abundant throughout the region to the west of the mountains, occurring under bark, stones, and rubbish: *sodalis*, Owens Valley, Yuma: *serratum*, Palm Springs, April: *inflatum*, at times obtainable in some numbers beneath the vegetation growing on the sand-dunes along the shore from Santa Monica to San Diego: *bicolor* and *cylindricum* have been taken in Kern County; of the former I have specimens taken at or near Bakersfield in May.

Emmenastus.—*E. longulus* is rather common, though less plentiful than *Eurymetopon convexicolle* with which it occurs (see above): *piceus*, San Diego and San Bernardino counties; Blaisdell records typical specimens from Julian, at an altitude of 6,000 feet: *obesus*, San Diego; "plentiful under dry cow manure, boards, rags, etc." (Blaisdell): *thoracicus*, San Gorgonio Pass (Casey): *obtusus* and *ater* belong to middle California; I have

Chilometopon.—*C. abnorme*, Palm Springs: *helopioides*, recorded by Horn from "Cal." simply, but without doubt from the desert country to the southeast.

Cnemodus.—*C. testaceus*, Yuma; apparently scarce.

Zopherus.—*Z. tristis*, San Bernardino County: *granicollis*, San Bernardino Mountains, July; Pomona, May, and Echo Mountain: *induratus*, Julian, San Diego County. None of the species are at all common.

Phlœodes.—*P. diabolicus* is common and widely dispersed in our district, occurring under bark and in decaying stumps, especially of the live-oak. According to Blaisdell, the adult insect feeds upon a large and tough species of fungus growing upon the oak.

Noserus.—*N. plicatus* is found under the bark of dead trees, at Pomona and at Julian, San Diego County (Blaisdell); scarce.

Phellopsis.—*P. obcordata* var. *porcata*, mountain regions from Lake Tahoe to Shasta.

Usechus.—*U. lacerta*, middle and northern regions.

Dacoderus.—*D. striaticeps*, Vallecito, San Diego County.

Aræoschizus.—*A. sulcicollis*, Owens Valley: *costipennis*, Vallecito (Le Conte); one example under bark, Indio, December; Palm Springs, April (Fényes): *armatus*, Owens Valley.

Anepsius.—*A. delicatulus*, Pomona and Palm Springs; found under stones, in dry places; rare west of the mountains, more common on the desert; according to Blaisdell the species is not uncommon in the maritime portions of San Diego County.

Typhlusechus.—*T. singularis* is a minute, blind species of which two specimens were found by Koebele in Los Angeles County.

Nyctoporis.—*N. carinata* is widely distributed in our district, occurring under bark, logs and debris: *galeata*, *cristata* and *æquicollis* occur in the State, but farther north.

Cryptoglossa.—*C. verrucosa* is not rare in the Mojave and Colorado deserts; I have seen specimens from Antelope Valley and from Needles, also from other points farther south, along the Colorado River: *lævis* occurs at Yuma, "under logs and stones" (Horn).

Centrioptera.—*C. muricata* is not rare at Palm Springs, in April. The beetles remain concealed beneath stones and rubbish during the heat of the day, appearing about sundown, when numbers may be seen walking slowly about the dry washes and amid the sagebrush, a custom common to many of the larger Tenebrionidæ of the southwest. *C. seriata* is found in "So. Cal." according to Horn, and Blaisdell mentions *asperata* as occurring rarely at Poway, San Diego County.

Schizillus.—*S. laticeps*, Mojave Desert (Crotch). I do not know of any specimens having been taken by our later collectors.

Microschatia.—*M. inæqualis*, San Diego and Riverside in February and March; not rare. Specimens of

Diego and Yuma: *obsoleta*, "Borders of Col. Desert;" San Bernardino Mountains, July; Riverside, Julian, Pasadena, October: *muricatula*, San Diego and Los Angeles: *luctata*, rare in Owens Valley: *angulata*, San Diego and Riverside, winter and early spring: *lecontei*, Kern and Tulare counties: *captiosa*, Tulare region and Monterey County: *marginata* and *gabbii*, San Diego County (fide Fuchs).

Coniontis.—The species of this genus occur under stones and rubbish, usually in dry places, though this is not always the case. They are difficult to discriminate, and it is doubtful if all the species named below are well founded; if so, then there are surely several others awaiting description. *C. abdominalis* is our largest species, and one of the rarest; it has been taken at Santa Barbara, Los Angeles, and Pasadena: *robusta* occurs at Santa Barbara: *elliptica*, specimens so identified by Casey are common at Riverside, Pomona, San Diego, Catalina Island, etc.; it is difficult to separate from *robusta*, and was not considered distinct by Horn: *lata*, San Clemente and Santa Barbara islands; var. *insularis*, Santa Cruz and Santa Rosa islands: *opaca*, Owens Valley: *punctipes*, San Bernardino County: *subpubescens*, not rare at various localities from Los Angeles to San Diego: *globulina*, Tehachapi Pass: *pallidicornis*, "So. Cal.:" *parviceps*, San Diego, Pomona, Pasadena. Numerous other species are found farther north: *inæqualis*, "Cal.," without definite locality: *elongata*, *genitiva*, and *parallela* are from the northern part of the State: *viatica*, *eschscholtzii* and *nemoralis* are from San Francisco: *puncticollis*, from San Francisco and the central valley: *farallonica*, from the Farallon Islands: *montana*, from Lake Tahoe.

Cœlomorpha.—*C. maritima* was described from Lower California, but Horn also cites San Diego; it is similar to *Cœlus* in habits.

Cœlus.—The individuals of this genus are very abundant at all seasons in the sand-dunes along the coast from San Francisco to San Diego; they vary exceedingly in size, form and thoracic sculpture, and I am unable to recognize more than two species along our southern coast, viz., *globosus* and *arenarius*, the former having a deeply, and the latter a feebly, sinuate epistoma. Typical *grossus* is very large, with unevenly punctuate thorax; but there is every gradation between this and typical *globosus*, in fact, the majority of specimens are intermediate. Both *latus* and *curtulus* are founded chiefly on form and punctuation of the prothorax, both of which appear to me to be too unstable to be of use in specific division, and I have little hesitation in placing the former as a synonym of *arenarius* and the latter as a synonym of *ciliatus*. Two other species are found on the Southern California islands: *pacificus*, on Santa Barbara and Santa Rosa, and *remotus*, on San Clemente; it is doubtful if these two species share the burrowing habit of their congeners on the mainland.

Vallecito, San Diego County (Le Conte): *difficilis*, not rare at San Diego, where I have taken it in some numbers about the roots of plants on the Coronado peninsula: *muricatus*, Colorado Desert and Owens Valley. Casey has described *nanus* from Kern County.

Eleodes.—A goodly number of representatives of this common western genus are found in Southern California. Their habits are practically the same as those of the greater part of the larger wingless Tenebrionidæ. While they are occasionally abroad by day, as a rule they remain concealed beneath boards, stones, rubbish, etc., till toward evening, when they become active. *E. quadricollis* is a common species about San Diego, and is found near the seacoast as far north as San Francisco; it is not uncommon on Catalina Island: *armata* is probably the most abundant species of the genus along the line of the Southern Pacific Railroad, through the Colorado Desert; I have found it common at Palm Springs, in April, on the western border of this desert: *femorata* is decidedly rare in the vicinity of San Diego, the only locality from which it is known: *gentilis* is said by Blaisdell to be common at San Diego, but specimens coming to me from that place and bearing this name proved to be only *quadricollis*; the type, however, comes from that vicinity, and Blaisdell's reference is perhaps correct: *interrupta* is rare about San Diego (Blaisdell): *gracilis* is represented by one example taken by me at Palm Springs, and so identified by Dr. Horn; it is not typical and may possibly prove distinct: *grandicollis* and *gigantea* are found at various points from Los Angeles to San Diego, on the western side of the mountains, and both are said to be more or less common about San Francisco; of the two, *grandicollis* is the scarcer in Southern California: *acuticauda* is our most abundant species throughout the southern part of the State; at Pomona, Pasadena and vicinity, it finds shelter in cellars, and is, in fact, the only species of the genus that occurs commonly about houses: *pilosa* and *hirsuta* inhabit Owens Valley: *scabripennis* is known from Santa Barbara and Santa Rosa islands and Fort Tejon; it does not appear to be common: *consobrina* is not rare in the foot-hills and up to altitudes of 5,000 to 6,000 feet in the southern Sierras: *tenebrosa* occurs in Owens Valley: *parvicollis* and its varieties, *producta* and *marginata*, are given on the authority of Dr. Blaisdell, who names them in a list of species observed by him in San Diego County; both occur about San Francisco, and I have never seen specimens from further south: *subnitens* has been taken in San Diego County (fide Fuchs). The following species occur in those parts of the State to the north of our district: *E. obscura* var. *sulcipennis*, desert region in the northeast; *humeralis* and *elegans*, northern coast region; *estriatus*, *clavicornis* and *parvicollis*, about San Francisco, the second named species being very abundant in the sand-dunes on the ocean front; *dentipes*, common to the south of San Francisco; *prominens*, San Luis Obispo County; *granulata*, *granosa* and *cuneaticollis*, exact locality not named, though it is probable that the first two occupy the desert region of

San Nicolas islands: *rufipes*, *pubescens* and *laticornis* are more or less common from San Diego north through the western portions of our district, especially under stones and rubbish in dry places in spring: *crassicornis* is described from "So. Cal.," and must resemble the preceding in habits: *obscura* is plentiful along the sea beaches: *bicarinata* occurs in the San Joaquin Valley.

Cerenopus.—*C. concolor* and *C. costulatus* are taken in the Colorado Desert; the former is moderately common at Palm Springs, the latter is said by Blaisdell to be rare in San Diego County.

Argoporis.—*A. costipennis* and *A. bicolor*, Colorado Desert: *inconstans*, San Diego (Horn).

Amphidora.—*A. littoralis* is common everywhere west of the mountains; found beneath logs, rocks, bark, etc.; as remarked by Blaisdell, the name is not at all appropriate: *nigropilosa* occurs along the seashore and may usually be found in numbers about the roots of plants on and adjacent to the sand-dunes, or concealed beneath any object that will offer shelter.

Cratidus.—*C. osculans* is common and widely diffused: *fuscipilosus* occurs, according to Blaisdell, on the summits of the mountains about Julian; it is, perhaps, not specifically distinct from the preceding.

Stenotrichus.—*S. rufipes*, San Diego, Riverside, Pomona, Santa Monica; not very common.

Alobates.—*A. pennsylvanicus* is northern.

Iphthimus.—*I. serratus* and its variety, *sublævis*, occur under bark, in the Sierras; the latter has been taken in the San Bernardino Mountains.

Cœlocnemis.—*C. dilaticollis* is found in the higher parts of the southern Sierras, under bark, logs, etc.:

obesa is not rare in the foot-hills near Pomona, Pasadena, etc.: *magna*, Central Valley: *rugosa*, Los Angeles County (Coquillett).

Centronopus.—*C. parallelus*, middle Sierras, under bark.

Cibdelis.—*C. blaschkii*, San Diego County, "mountainous districts, under bark" (Blaisdell); commoner farther north: *bachei*, Santa Barbara, San Clemente and Santa Catalina islands: *lævigata*, Santa Barbara.

Tenebrio.—Specimens of *obscurus* have been found in grain at Pasadena; perhaps a mere sporadic importation: *tenebrioides* is rare, under bark, in the San Bernardino Mountains.

Bius.—One example of *estriatus* was found under pine bark in the San Bernardino Mountains, July; it is one of our rarest species.

Doliema.—*D. plana* is generally rare, but is occasionally found in large numbers under the bark of dead sycamores; I have taken it thus in the Ojai Valley, in March, and Blaisdell reports similar captures in San Diego County; occurs also at Yuma (Wickham).

Alæphus.—*A. pallidus*, Palm Springs (Fényes), Fort Tejon (Horn). Mr. Wickham reports a species of

Trichoton.—*T. sordidum* occurs at Palm Springs, in April, under boards, stones, etc., as is generally true of the *Blapstini.*

Ulus.—*U. crassus* is common in many localities: *latus*, along the San Diego River (Blaisdell).

Blapstinus.—*B. longulus*, Yuma, San Diego (Blaisdell): *validus*, "So. Cal." (Casey); probably from the Colorado Desert: *dilatatus*, common everywhere: *histricus*, Los Angeles County (Newhall): *coronadensis*, rather common at Coronado (Blaisdell): *rufipes*, our commonest species: *æqualis*, San Bernardino: *funebris*, Southern California (Casey): *brevicollis*, Riverside, Santa Monica, Pomona; not very abundant: *pubescens*, San Bernardino, Pomona, San Diego: *sulcatus*, Riverside, San Diego, Ojai Valley; rather common. The following species are described from the middle and northern parts of the State; their identification is a matter of much difficulty: *fulginosus*, *discolor*, *gregalis*, *pulverulentus*, *parallelus*, and *inquisitus*.

Conibius.—*C. parallelus* is said by Blaisdell to be rather common about San Diego and Poway, but I have not yet detected it in the vicinity of Los Angeles; it was described from San Jose: *seriatus* is common in Los Angeles County, and occurs as far north as Sylvania; it was described from the Colorado Desert. The distinctness of this and the preceding species I believe may fairly be questioned. *C. elongatus* is said by Horn to be rather common under stones, in Owens Valley: *crassipes* is described by Casey from "So. Cal."

Notibius.—*N. puberulus*, Colorado Desert, Needles (Wickham), not rare at Palm Springs in April: *puncticollis*, rather frequent at Riverside, Pomona, and Pasadena; often seen on city streets and walks: *granulatus*, Palm Springs, Yuma: *gracilis*, Indio (Casey): *sulcatus*, Riverside. San Diego, San Clemente Island; not common.

Cnemeplatia.—*C. sericea* is generally rare; it was once taken in some numbers, under boards, amid stable refuse at Pomona: it is occasionally taken on the wing toward evening, and at San Francisco comes to electric lights, at times in great numbers. Horn speaks of the species as being rare in Owens Valley, under stones.

Alaudes.—*A. singularis* is a very rare species originally taken by Dr. Horn in Owens Valley, where it was found living under stones, with a small black ant. A few specimens were next taken by Wickham—some twenty-five years later—in eastern Oregon, then a single example by Koebele, in the Argus Mountains of southeastern California, not far south of the original habitat. In November and December of 1893 and 1895, I secured about a dozen examples from under boards in my garden at Pomona, under conditions which apparently indicated no connection with ants; and since then Dr. Fényes has taken about an equal number at Azusa, Los Angeles County, this time with ants. I know of no other instances of its capture.

Tribolium.—*T. ferrugineum* and *T. confusum* are both

Ulosonia.—*U. marginata* occurs along the Colorado River, under cottonwood bark.

Merotemnus.—*M. elongatus* labeled "Cal." is probably from the southeast.

Aphanotus.—*A. brevicornis* is rather common in the eastern portion of San Diego County (Blaisdell); very rare at Pomona, a single dead specimen being all that I secured in seven years' collecting.

Alphitobius.—*A. ovatus* and *A. piceus* have both found their way into our territory, though neither is as yet common. Of the former species, I secured a specimen under bark at Indio, in the Colorado Desert, and several examples of the latter have been taken at Pasadena by Dr. Fényes.

Cynæus.—*C. angustus* is reported from the Colorado Desert: *depressus* is rather common in and upon the decaying base and roots of *Yucca whipplei* in various localities; I have found it near Pomona in May.

Metaclisa.—*M. marginalis* is rather rare, occurring under bark of pines in the San Bernardino Mountains; also found at Julian (San Diego County).

Uloma.—*U. longula* is not rare under bark, in the Sierras.

Phaleria.—*P. rotundata* is very abundant everywhere on our seacoast from San Diego to San Francisco, occurring beneath kelp. I have no hesitation in uniting *limbalis* with the preceding; a long series shows every grade in coloration from uniform testaceous to typical *limbalis*, which is in great part black; a precisely analogous variation is observable in the common *testacea* of the Atlantic coast. *P. debilis* is reported from Yuma:

globosa is common on the seashore, near San Francisco: *humeralis* is said to be from "Cal."

Anemia.—*A. californica*, Owens Valley.

Platydema.—*P. subquadratum*, Colorado River. Mr. Wickham reports it as not rare in August at East Bridge, just across the river from Needles. *P. oregonensis* is rather common about fungus on old stumps, under bark, etc., in the Sierras from San Diego County north.

Alphitophagus.—*A. bifasciatus* is not especially uncommon of late at Pasadena and in the neighboring mountains.

Hypophlœus.—*H. substriatus* occurs in the Sierras, under bark: *opaculus* is very scarce; two examples were taken in March from the burrows of *Monarthrum scutellare*, in live-oak.

Pentaphyllus.—*P. californicus* is northern.

Eleates —*E. explanatus* and *E. occidentalis* both occur on fungus growing on logs in the region about Lake Tahoe; the former also inhabits the forests to the northward of San Francisco.

Megeleates.—*M. sequoiarum*, middle Sierras—Lake Tahoe and Calaveras. The larva has been taken by Dr.

Helops.—*H. edwardsii* is not rare, under bark, in the San Bernardino Mountains: *ovipennis*, Mojave Desert: *rugicollis*, Owens Valley and Tejon: *strigicollis*, "So. Cal.," probably near San Diego (Horn): *attenuatus*, Vallecito (Colorado Desert) and Owens Valley. *H. bachei* and *H. blaisdelli* are said by Blaisdell to occur under maritime plants growing on the sand-dunes near San Diego, and one of these or a closely allied species I have found very common in similar situations at Redondo Beach; *bachei* was described from the Santa Barbara Islands, and typical examples are perhaps found only on the islands: *discipula* is described from the vicinity of San Diego.

The following species are more northern: *opacus*, San Francisco and north, also Sacramento; *punctatus*, "Cal.;" *rugulosus*, San Francisco; *angustus*, Tejon; *californicus*, San Jose, Lake Tahoe (beaten from pines in July); *tumescens*, "Cal., Coll. of Ulke."

ÆGIALITIDÆ.

Ægialites.—The exact locality of *californicus* is not stated; it is doubtless northern, if really from the State: *fuchsii* has been obtained in some numbers from Mendocino County and Farallon Islands, by Mr. Fuchs.

CISTELIDÆ.

Xystropus.—Horn expresses a belief, which I think well founded, that *X. californicus* is an accidental importation from Mexico or further south. The original specimen was found at Martinez, on the shore of San Francisco Bay, and has never since been duplicated.

Stenochidus.—I have taken specimens that are referable to *gracilis* and *cyanescens*, at Pomona and Pasadena, during May and June, but have not yet succeeded in separating them to my satisfaction. It is certain that the color of the legs is not a specific character, these being usually red in the males and black in the females.

Hymenorus.—*H. infuscatus*, Los Angeles, Pomona, June; Catalina Island, July: *grandicollis*, specimens occurring at light on Echo Mountain were so identified by Casey; a different species in the collection of Dr. Fényes, and taken at Palm Springs, fits the description of *grandicollis* still better: *fusicornis*, Riverside and Pasadena, April and May; rare: *fusculus*, Coronado, in decaying sunflower blossoms (Blaisdell): *macer*, Poway, common, (Blaisdell): *punctatissimus*, Riverside, Pomona; June to October; not rare. Blaisdell reports *inquilinus* as occurring in the nests of the agricultural ant, in Calaveras County, in September. *H. punctulatus*, *H. discrepans*, and *H. uniseriatus* are Californian, but without definite locality.

Mycetochares.—*M. longipennis* is rare at Pasadena, March (Fényes): *procera*, Los Angeles (Casey); Pasadena, April (Fényes): *pubipennis*, Pasadena and Redondo, March. All the above are more or less rare. *M. nevadensis* I have beaten from pines at Lake Tahoe, in July: *crassulipes* and *pacifica* are also described by Casey [illegible] and *discolor* from " Cal." Hopping alludes to the latter as being common at from 1,000 to 7,000 feet elevation along the Kaweah River, in Tulare County.

Cistela.—*C. opaca* is common on flowers in the southern Sierras from April to June. The color of the legs is not a specific character, the femora being about as often red as black. The specimens taken by Blaisdell in San Diego County and referred to *theveneti*, are doubtless the red-legged form of *opaca*, *theveneti* occurring in the middle Sierras, so far as known.

OTHNIIDÆ.

Othnius.—*O. longicornis*, Yuma.

MONOMMIDÆ.

Hyporhagus.—*H. gilensis*, San Bernardino County (Fuchs).

MELANDRYIDÆ.

Carebara.—*C. longula* is rather plentiful on pines, in the San Bernardino Mountains, in July.

Phlœotrya.—*P. riversi*, *P. bicincta*, and *P. vaudoueri* are all northern, the two former being from Sonoma County.

Eustrophus.—*E. repandus* is from the extreme north.

Nothus.—*N. luteus*, Pomona and Pasadena in June; taken on oaks.

Lacconotus.—*L. pinicolus*, Pomona and Pasadena; rare during May and June; found always on oaks, notwithstanding its name.

Mycterus.—*M. concolor* is not rare in the San Bernardino and other ranges of the southern Sierras, in June and July; the variety *flavipennis* occurs rarely with the type: *quadricollis* is said by Crotch to occur on flowers of Agave, at Temescal: *canescens* is found also in the Sierras, but farther north.

PYTHIDÆ.

Priognathus.—*P. monilicornis*, Tallac (Lake Tahoe), under bark (Fényes).

Cononotus.—*C. macer*, Owens Valley: *punctatus*, San Jose: *sericans*, San Jose and San Diego.

Salpingus.—*S. alternatus* is northern.

Rhinosimus.—*R. æneirostris*, about San Francisco.

ŒDEMERIDÆ.

Calopus.—*C. angustus*, "Cal.," probably northern.

Ditylus.—*D. quadricollis*, from the northern and middle Sierras.

Nacerdes.—*N. melanurus*, Long Beach; a single dead specimen washed up by the waves. I have not thought it wise to place this species in the foregoing list on so slender a basis.

Oxacis.—*O. fragilis*, San Diego: *bicolor*, not rare on the wing at dusk in the San Bernardino Mountains, altitude 5,000 feet: *O. sericea*, Owens Valley: *lucana* and *debilis* are from Yuma.

Rhinoplatia.—*R. ruficollis*, Owens Valley.

CEPHALOIDÆ.

Cephaloon.—*C. tenuicorne*, northern: *bicolor*, Sonoma and Placer counties.

Drachylis.—*D. simulans* was recently described by Casey from Placer County.

MORDELLIDÆ.

Pentaria.—*P. nubila* is abundant everywhere: *hirsuta*, Southern California: *pusio*, common and widely dispersed, frequently beaten from oaks, but nearly always obtainable by promiscuous beating and sweeping; this species has been wrongly included with *Anaspis*.

Anaspis.—*A. atra* and *A. collaris* are both frequent on flowers, though the former is more plentiful farther north: *militaris* and *sericea* are quoted from "Cal.," but I am unable to ascertain precise localities. Two specimens of an undescribed species were taken by me in the San Bernardino Mountains, in July.

Mordella.—*M. scutellaris* is very common and widely dispersed; it is extremely variable in size. A single specimen of an undescribed species was secured at Pomona some years ago.

Mordellistena.—The species of this genus are rather numerous in our district and many are undescribed. The greater number are black without ornamentation and will prove difficult to define. The following are now credited to the State: *vilis*, San Diego, Los Angeles, etc., common: *comata*, San Diego; *aspersa*, San Diego (teste Smith): *tosta*, Yuma (Horn); *nubila*, San Diego (Le Conte), Riverside, one example identified by Smith: *unicolor*, Pomona, not common: *infima* and *æqualis* also inhabit the State according to Smith.

ANTHICIDÆ.

In a recent revision of this family Casey has established a large number of new genera, especially for the reception of the species now included under *Anthicus* and *Xylophilus*. It may be that some of these will stand but the writer is convinced that many of them will not, and until proper discrimination is possible, it has seemed best to employ the genera recognized by Le Conte and Horn in the "Classification."

Eurygenius.—*E. constrictus* is not very common; it is taken by beating and sweeping, in the foot-hills near Pomona and Pasadena, during May and June.

Stereopalpus.—*S. pruinosus* is moderately common on willows, near Pomona, in June: *nimius* and *incanus* are described from "So. Cal." and Los Angeles County, respectively: *variipes*, *indutus*, and *impressicollis* are described from the northern part of the State.

flabellata, Lake Tahoe and north; *crotchii*, middle coast region; *abnormis*, Lake Tahoe; *funebris*, " widely diffused in Cal.;" *punctulata*, middle and northern; *lewisii* var. *monticola*, "Cal.;" *vittata*, "Cal."

Formicomus.—*F. mundus* is found under rubbish along the banks of the Colorado River, at Yuma, in July.

Anthicus.—*A. tenuis* is not uncommon at Yuma, in similar situations to the preceding: *pinalicus*, *canonicus*, *bipartitus*, and *turgidicollis* belong to the genus *Lappus* of Casey; they are arboreal in habit, *canonicus* being an especially abundant species in the foot-hills above Pomona, Pasadena, etc., occurring on many trees and shrubs. Specimens taken at Arrowhead Springs are referred with some doubt to *pinalicus*: *bipartitus* occurs at Yuma: *turgidicollis* is from "So. Cal.:" *californicus* is widely diffused, being known to me from Santa Monica, Long Beach, Riverside, Santa Catalina and San Clemente islands, Bakersfield and San Francisco: *confinis* is plentiful throughout our district; it is found about the roots of grass, on the borders of lawns, and often comes to light: *formicarius* is not frequent; I have seen specimens from Pomona and Pasadena, the only specimens taken by me being found in stable refuse: *rufulus* occurs at San Diego (Le Conte): *cribratus*, Riverside and Pomona, in May and June; not common: *hecate*, margins of streams, in the foot-hills near Pomona: *luteolus*, common along the Colorado River: *pinguescens*, common and widely dispersed from Southern California to the Columbia River: *ovicollis*, Los Angeles (Casey): *biguttulus*, Riverside, May and June; also middle California and Vancouver: *punctulatus*, abundant and widely dispersed in the true Pacific region: *seminotatus*, Los Angeles and Kern counties: *nanus*, San

Diego (Le Conte): *obliquus*, very common in Los Angeles County, coming often to light in swarms during May and June: *militaris*, mountains near Pomona, but not common: *bellulus*, Pasadena in March and San Diego; not common: *herifuga*, San Bernardino, Riverside, Pomona, Pasadena, etc.; rather common: *maritimus*, not abundant on the sea beaches; Long Beach, June: *corticalis*, Yuma: *obesus* is rather plentiful, and in much variety of size and color; various beaches of Southern California and at San Francisco. *A. albicans* and *A. parviceps* are merely varieties which would occur in any considerable series taken at any one locality. The following are either from the middle or northern regions or are mentioned without definite locality: *vigilans*, *nitidulus*, *franciscanus*, *nigritulus*, *protectus*, *mercurialis*, *præceps*, *auriger*, *inscitus*, *amœnus*, *obscurellus* and *helvinus*.

Tanarthrus. — The writer has not yet met with *salinus*, which is said to occur around the southern salt lakes: *alutaceus* is not rare at San Diego and Redondo; I have taken specimens at the latter locality in March and April, on the muddy border of a small salt lake.

our region: *lustrellus* is described from San Francisco: *humboldti*, described from Humboldt County: *nevadensis* has been found at Tallac, by Dr. Fényes: *serratus* and *apicalis* are both credited to California by Dr. Horn, but there is reason to suspect that his specimens were not properly referred. Three other species of doubtful standing, but probably undescribed, are known to me from Southern California.

Mecynotarsus.—*M. delicatulus*, Yuma and Pasadena, April; several examples taken at electric light.

Xylophilus.—*X. brunnipennis* is not common; I have seen examples from San Bernardino, Pomona, and Pasadena. This is the species described by Casey as *saginatus*, but there appears to be no need for a new name. *X. brunnescens*, *X. nucleus* and *X. constrictus* are known only from one or two specimens each, and all are from the higher parts of the southern Sierras; *constrictus* has also been found at Lake Tahoe.

PYROCHROIDÆ.

Pyrochroa.—*P. californica* was recently described by Dr. Horn, from specimens taken in Los Angeles County by Coquillett; it is undoubtedly a rare insect.

MELOIDÆ.

Cysteodemus.—*C. armatus* occurs at many places on the Colorado Desert; taken in numbers at Yuma, in March, by Mr. Daggett.

Meloe.—*M. barbarus*, Santa Barbara Islands (Le Conte): *strigulosus*, a specimen so referred was taken by me at Palm Springs: *opacus* is northern.

Nomaspis.—*N. sublævis*, from Fort Tejon.

Poreospasta.—*P. polita*, from "Southern Coast Range of Cal." (Gabb).

Nemognatha.—The species of this genus are moderately numerous on flowers, chiefly Compositæ, from June until October. There is much variation within specific limits, which renders the proper separation of species difficult. *N. apicalis* and *N. dubia* are common on sunflowers, in September, at Pomona, Pasadena, etc.; two undescribed species occur with them, but more sparingly: *lutea* probably inhabits the Colorado Desert, but I have not yet recognized specimens with certainty: *nigripennis* is not common; I have seen specimens from Los Angeles, Pomona (May), and the San Bernardino Mountains (5,000 feet elevation), July: *scutellaris* is very common on low Compositæ, near Pomona, Pasadena, etc., in June and July: *dichroa* and *piezata* are reported from the State, but I have been unable to determine the exact localities.

Gnathium.—*G. nitidum*, Owens Valley.

Zonitis.—One example from Barstow is referred to *flavida*. I have seen a specimen in Dr. Van Dyke's collection of an apparently undescribed species from Southern California.

Epicauta.—I have specimens of *alphonsii* said to have

Cantharis.—Three examples of *melæna* in my collection are from Southern California, one from Temescal, the other two without definite locality: *magister*, Colorado River, Owens Valley: *vulnerata*, common at times at Pomona and Pasadena, on flowers, in September; Owens Valley (Horn): *childii*, near Los Angeles, April (Van Dyke); in Compositæ; San Diego (Horn): *tenebrosa*, San Diego; Arrowhead Springs, April: *mœrens*, Santa Monica, Owens Valley, Tejon, Sacramento: *insperata*, Mojave Desert and San Diego, in April: *occipitalis* and *incommoda* are recorded from "So. Cal.:" *stygica*, San Bernardino Mountains, at an altitude of 6,000 feet: "Oregon to the borders of the Colorado Desert:" *auriculata*, Riverside, Pomona, Pasadena, etc., not rare, on low Compositæ, in early spring: *æneipennis*, found in the same localities and at the same time as the preceding: *crotchii*, San Diego, March: *nitidicollis*, Pasadena, Riverside, San Diego in May; rare at the former places, more common at San Diego: *lugens*, not common at Pomona and San Diego in May: *compressicornis*, Owens Valley; Los Angeles County (Van Dyke): *cyanipennis*, *refulgens* and *rathvoni* are found in middle California: *ulkei* is recorded simply from "Cal."

Calospasta.—*C. elegans*, Cariso Creek, western part of Colorado Desert, in San Diego County: *perpulchra*, rather rare on flowers, Pomona, in August and September: *mirabilis*, desert regions of Los Angeles and San Diego counties: *mœsta*, Southern California, exact locality not known: *nemognathoides*, Owens Valley and Yuma: *opaca*, desert or semidesert regions near Los Angeles: *fulleri* is simply reported from "Cal." but is probably, like nearly all the species of the genus, from the deserts of the east or southeast.

Tegrodera.—*T. erosa*, San Diego, Riverside, Owens Valley (race *latecincta*). Certainly very rare at Riverside, but common enough at times at various places on the Desert. Horn states that it occurs in Owens Valley in "the latter part of June, on a low plant bearing blue flowers."

Phodaga.—*P. alticeps*, Indio, Owens Valley.

RHIPIPHORIDÆ.

Rhipiphorus.—*R. flavipennis* and *R. cruentus* are rather uncommon, on flowers in the southern Sierras, at an altitude from 1,500 to 5,000 feet; I have taken them in the San Gabriel and San Bernardino ranges; var. *rufus* of the latter species has occurred at Los Angeles (Fuchs).

Myodites.—*M. californicus*, Los Angeles County (Van Dyke).

RHINOMACERIDÆ.

Rhinomacer.—*R. comptus* and *R. bombifrons* occur on conifers, in the Lake Tahoe region: *pilosus* is described from "Cal."

Diodyrhynchus.—*D. byturoides* is found in the middle Sierras (Placer County).

is abundant on *Eriogonum cinereum*, at Redondo, in April and May; it has also been found in the foot-hills near Pomona, but on what plant I am not now able to say: *velatus* occurs in the "Sierra Nevada Mts.—Morrison:" *naso* is described from "Cal."

Deporaus.—*D. glastinus* is common on live-oaks, especially when in blossom, throughout our region.

OTIORHYNCHIDÆ.

Minyomerus.—*M. languidus*, Fort Tejon (Horn).

Stamoderes.—*S. uniformis*, Sonoma County.

Agasphærops.—*A. nigra*, Mendocino County.

Trigonoscuta.—*T. pilosa* is abundant throughout the year in the sand-dunes along the ocean front.

Eupagoderes.—*E. argentatus*, *E. desertus* and *E. varius* inhabit the Colorado Desert, while *geminatus* and *plumbeus* occur farther north, in Owens Valley. It is almost certain that *plumbeus* is not distinct from *varius*. Specimens of a species of this genus have been found at Claremont, by Professor A. J. Cook; these are possibly *varius*, but so far as seen they are uniformly vittate and I am inclined to believe them different from anything described.

Rhigopsis.—*R. effracta* is common on and about the roots of various weeds, at Pomona, Pasadena, San Bernardino, etc. Horn reports it as having been found "feeding on yucca."

Amotus.—One example of *gracilior* was found on the beach at Santa Barbara, in February; it is not rare at Santa Monica (Albright): *longisternus* seems very close to the preceding, and like it was described from Los Angeles County.

Dyslobus.—*D. signis* is found only in the most northern parts of the State.

Amnesia.—*A. tumida*, Santa Cruz Mountains: *rauca*, *decidua*, *elongata*, and *tesselata*, from the vicinity of San Francisco: *sculptilis*, *discors*, and *granulata*, from the extreme north: *decorata*, middle Sierras.

Adaleres.—*A. ovipennis* and *A. humeralis* are quite common on live-oaks, especially in early spring. The differences named by Casey seem illusory and intercurrent in a large series.

Nomidius.—*N. abruptus*, "California."

Orimodema.—*O. protracta*, Mojave Desert (Horn).

Nocheles.—*N. vestitus*, Lake Tahoe (Fényes).

Mimetes.—*M. setulosus*, San Diego, April to June; Ventura: *seniculus* is probably from farther north, but the exact locality is not known to me.

Phymatinus.—*P. gemmatus*, "Cal. and Oreg."

Miloderes.—*M. setosus*, Kern County.

Sciopithes.—Specimens taken on San Clemente Island in June are identified by Casey as *S. setosus*, var.; the species was described from north of San Francisco

Stenoptochus.—*S. inconstans*, Riverside and Pasadena; swept from weeds, in April and May.

Orthoptochus.—*O. squamiger*, "Cal."

Mylacus.—*M. saccatus* is northern.

Thricolepis.—*T. inornata* is not rare in the San Bernardino Mountains, in July: *simulator* is described from Fort Tejon.

Peritelopsis.—*P. globiventris*, central California.

Peritelodes.—*P. obtectus*, Monterey County.

Peritelinus.—*P. variegatus*, Lake Tahoe.

Geoderces.—One example of *puncticollis* was taken at Pomona, in February. Two undescribed species, one of them quite common, have been taken at Pomona and Pasadena. *G. incomptus* occurs from San Francisco north.

Geodercodes. — *G. latipennis*, Monterey, in June. (Casey and Fényes).

Aragnomus.—*A. griseus*, Tulare County: *hispidulus*, Los Angeles County.

Dysticheus.—*D. insignis*, Southern California (Horn).

Eucyllus.—*E. vagans*, from the southeast.

Thinoxenus.—*T. squalens*, "Not rare near the seacoast of California."

Rhypodes.—*R. dilatatus*, "near the seacoast at San Diego." I have an example taken near Pomona in June.

Panormus.—*P. setosus*, Monterey County.

Dirotognathus.—*D. sordidus*, Fort Mojave (Crotch).

Elissa.—*E. constricta*, Yuma.

Aramigus.—*A. fulleri* is rapidly spreading throughout Southern California and attacking a variety of trees and shrubs. I have found the beetles from September to November, most frequently on rose bushes.

Scythropus.—*S. californicus* is an abundant species in the middle Sierras. Specimens taken on pines in the San Bernardino Mountains are probably distinct, but are left here for the present: *lateralis* is described from Lake County, *ferrugineus* from Marin County, *cinereus* from Lake Tahoe.

CURCULIONIDÆ.

Sitones.—*S. sordidus*, "San Francisco and San Diego;" it is unknown to the writer: *crinitus*, one example taken at Pomona is so referred: *nebulosus*, one example, Pomona, July: *hispidiceps* is the commonest species in the vicinity of Los Angeles; identified by Capt. Casey, who writes that his *prominens* and *angustulus* are to be considered synonymous with this species: *explicitus*, not rare at San Diego in February. I have taken one specimen of a very distinct and undescribed species in the San Bernardino Mountains in July. The following are credited to the State, but their recognition is practically impossible as our literature now stands: *californicus*, diffused throughout the United States, but much more common in the Atlantic district: *hesperum* has been found only by Coquillett in the desert portions of Los Angeles County: *sordidum* is an abundant species in the desert but very uncommon west of the mountains; specimens have been taken in May at Pomona and Pasadena; it has been bred from galls on several occasions—notably by Mr. Koebele from "Cecidomyid and dipterous galls on *Artemisia californica*," and by Mr. Schwarz from "bud-like gall on stems of *Hymenoclea monogyra* in Arizona: *antennatum* is not rare, on pines in both the southern and middle Sierras, July; taken also at Pomona in January, Catalina in July, and Ventura in March: *œdorhynchum* is common throughout our region, April to October: *opacicolle*, Ojai Valley, March; uncommon: *troglodytes* is plentiful from San Diego to San Francisco, December to May: *proclive* is abundant nearly everywhere both east and west of the mountains; it has been beaten from willows at Pomona, March to October: *cribricolle* is widely distributed throughout the State, and is generally abundant; common on *Eriogonum cinereum* at Redondo in Spring, but occurs on a variety of plants and trees. *A. cordatum* is rare at Pomona, where specimens have been beaten from willows in October: *varicorne* is plentiful at Yuma, in July, on a species of *Dalea*: *ventricosum* is very abundant on the desert, occurring on mesquite: *attenuatum* is rather rare; specimens have been taken at Pomona, Pasadena and Riverside. Two other species—*protensum* and *walshii*—have been found within the State; the former is known by the unique type taken at San Francisco, while the latter has been found only in the north.

Podapion.—*P. gallicola*, middle and northern Sierras; not common.

Lepyrus.—*L. perforatus* is northern.

Listronotus.—Two undescribed species of this genus are known from our district. One of these is near *teretirostris;* it has been taken at San Diego, Pomona, and Antelope Valley. Of the second species, a small form near *gracilis*, one example only has been found by me at Long Beach.

Macrops.—*M. hyperodes* and *M. californicus* are known from the central or northern parts of the State.

Emphyastes.—*E. fucicola* is not uncommon along the sea beaches, beneath sea-weed, etc.

Lixus.—*L. asper*, not frequent at San Bernardino, on *Rumex* (Wright): *perforatus*, not rare at Pomona, March to June: *semivittatus*, specimens which do not appear to differ from typical Arizona examples of this species are not rare on and about the roots of a plant growing along the sand-dunes near the beach at Santa Monica: *auctus* is northern: *parcus* is described from San Francisco.

Dinocleus.—One specimen of *pilosus* found at Coronado in July is scarcely different from the Le Conte type. The type is without exact locality but is doubtless from the south, and probably from the same region.

disposition of Le Conte's *virgatus*: *modestus*, common at Pomona, Ojai Valley, etc., in flowers of *Lupinus* in spring; specimens apparently identical have been collected in the San Bernardino Mountains: *pleuralis*, one example taken at Pomona in January.

Dorytomus.—*D. inæqualis*, Los Angeles (Casey); San Diego, March; probably affects cottonwood as do the closely related *mucidus* and *brevipilosus* of the East: *hystricula* is very abundant: *luridus* is tolerably common on willows when in blossom: Pomona, Pasadena, Riverside, etc.: *hirtus* was described from San Diego; this species is either a rarity or else an unusual form of the common thing which Casey has called *hystricula*: *rufus*, one example beaten from willows at Yuma: *cuneatulus* and *marginatus* are described by Casey from more northern parts of the State.

Pachyphanes.—*P. carus* is described from "Cal.;" it is probably not from our region: *corpulentus* is represented by a single specimen, so named for me by Dietz, taken near San Francisco in August.

Desmoris.—*D. constrictus* is abundant everywhere on sunflowers: *fulvus* and *sordidus* are reported from the State, and it is quite probable that both are found in the desert regions of the east or southeast. Dietz also describes *incertus* from the State.

Smicronyx.—*S. pusillus*, San Bernardino (collections of Horn and Dietz): *cinereus*, common and widely diffused: *instabilis*, rather rare at Pomona and Pasadena: *defricans*, not common, same localities as preceding: *nubilus*, Pasadena, Redondo, Palm Springs; not rare: *californicus*, Pomona, Pasadena, Palm Springs; April to August: *obtectus*, Pomona, Long Beach, San Diego:

especially abundant at the latter place in March. Two or three undescribed species are in my collection. All the species are obtained, and usually in numbers, by sweeping flowers in spring and early summer. Of the following, also from the State, *seriatus* was originally from Mariposa, while *perplexus*, *tardus*, *resplendens*, *pusio*, *scalator*, and *ornatipennis* are not definitely located.

Synertha.—*S. imbricata*, Mojave; San Bernardino Mountains, on pines.

Promecotarsus.—*P. maritimus*, San Diego.

Phyllotrox.—*P. nubifer*, Santa Barbara, February; Lake Tahoe, July.

Endalus.—One example of *limatulus* from Los Angeles County (Van Dyke): *ovalis*, Pomona; found about the roots of grasses in swampy places in winter: *œratus*, Yuba County.

Stenopelmus.—*S. rufinasus*, Santa Monica and Ventura, February and March; not common, San Diego (Crotch and Le Conte).

Bagous.—*B. californicus*, San Diego (Crotch).

Phycocœtes.—*P. testaceus* is common at times under scarce, the latter not rare in the San Bernardino Mountains in July. An undescribed species depredates upon alders in the locality just mentioned. *M. gracilis* is apparently not rare in central and northern parts of the State: *subtincta* is described from Gilroy (Crotch): *gentilis* occurs at Lake Tahoe.

Magdalinops.—*M. vittipennis*, "Cal."

Macrorhoptus.—*M. hispidus*, San Diego, June; Pomona, May: *estriatus* is recorded from Santa Barbara and Warner's Ranch (Crotch).

Tachypterus.—*T. quadrigibbus*, "Cal."

Cionistes.—One example of *insolens* was beaten from a sycamore at Pomona in October. I have seen numerous specimens collected near Bakersfield in April.

Anthonomus.—Several specimens of *peninsularis* were taken at Palm Springs in April by Coquillett: *confusus*, Los Angeles County; rare: *sycophanta* is common on willows in the vicinity of Los Angeles: *apertus*, Los Angeles, Riverside, Pasadena; not common; taken by sweeping weeds along roads in April and May: *albopilosus* is from the southeastern portions of the State: *æneolus* is usually rare, but was taken in some abundance during October and November of several successive years, on *Solanum nigrum* in a cañon near Pomona: *ater*, one example, on sunflowers at Pomona, April: *ochreopilosus*, Riverside and San Diego; quite common near the latter place in May: *pauperculus*, common at Riverside, Pomona, San Diego, and many other places in our district; taken by sweeping in waste places: *ornatulus* is found in similar places but is less common than the preceding: *figuratus* is unknown to me; it is said to have been taken at Santa Monica: *inermis*, southern Sierras from 3,000 to 5,000 feet altitude; not rare: *stolatus*, San Diego; several examples from Mr. George H. Field. The species following are also reputed to be Californian: *brunnipennis*, Geysers; *morulus*, near San Francisco; *effetus*, *squamosus*, *hirtus*, *subvittatus*, *canus*, and *affinis* are recorded from "Cal." simply; *tahoënsis* is described from a small series taken at Tallac (Lake Tahoe) by Dr. Fényes. Several of these doubtless were taken in the desert regions of the east and southeast, but I suspect that the identifications are not exact in all cases, and it would be well to await further evidence before placing the names in our list.

Epimechus.—*E. mimicus* is not common; taken by sweeping in the foot-hills near Pomona in May and June: *soriculus* is found in the same localities as the preceding but is still less common; January, April, June, also Long Beach in April: *nevadicus* occurs a little more frequently than either of the preceding; Pomona, April to July: *æmulus*, one example from San Diego: *adspersus* has been taken by Dr. Fényes at Monterey.

Elleschus.—*E. ephippiatus* is rather plentiful on willows in spring; Riverside, Ojai Valley, etc.

May. Of *T. prolixus* one specimen has been found, also on *Lupinus*, at Pomona in May: *setosus* is obtainable in numbers on mesquite in the Colorado Desert; and with it is what appears to be an allied, undescribed species: *semisquamosus* is reported from Tejon.

Sibynes.—*S. fulvus*, San Bernardino County.

Paragoges.—*P. maculatus* is an uncommon insect which was originally taken by Crotch at San Diego; I have seen specimens from Redondo, San Nicolas Island, and Alameda County.

Conotrachelus.—*C. duplex*, "California—probably southern" (Casey).

Rhyssematus.—*R. pubescens* is a rare species of which I have seen but two examples; one swept from flowers near Pomona in June, the other collected at electric light at Pasadena in April. Horn's type was obtained in Owens Valley.

Micromastus.—*M. gracilis*, San Francisco.

Tyloderma.—*T. morbillosum*, San Francisco.

Zascelis.—*Z. irrorata*, "Cal., Nev., Col."

Piazurus.—*P. californicus* is abundant on pines in the Sierras.

Copturus.—The type of *mamillatus* was probably from San Diego County, though the exact locality is not known. The only other examples seen by me were taken by sweeping weeds along the Colorado River at Yuma, and a single specimen from Ensenada, Lower California. *C. adspersus* is our commonest species; it is obtained by sweeping weeds in waste places, and is wide-spread: *longulus* is found only on coniferous trees in the higher parts of the Sierras. In the northern and central parts of the State are found *koebelei*, *lunatus*, *nubilatus* and *mucidus*. There are two undescribed species from our region in my collection.

Gyrotus.—*G. munitus*, "So. Cal." (Casey).

Acanthoscelis.—*A. californicus*, *A. frontalis* and *A. perplexus* are all given by Dietz as Californian, but without exact locality; they are probably not southern.

Ceutorhynchus.—*C. subpubescens*, "Los Angeles and Tejon" (Crotch): *angulatus*, *disturbatus* and *obliquus* are all found by sweeping low herbage—most often near streams—in or along the base of the Sierras; the first named is least common: *hornii* is described from "So. Cal.:" *nodipennis*, Los Angeles County, on *Ceanothus* (Coquillett): *mutabilis*, Little Bear Valley, June (Daggett): *convexicollis*, common at Pasadena on a cruciferous plant, February and March: *albopilosus*, Los Angeles: *pervestitus*, sp. nov., one example taken near Bakersfield: *isolatus*, "Montana, Elko, Nev. and Cal.:" *sericans*, middle Sierras: *ovipennis*, Dunsmuir: *decipiens*, "Cal.:" *cyanipennis*, northern: *pollinosus*, "Cal.:" *pusio*, San Francisco and north: *adspersulus*, "Cal. and Ariz.:" *pusillus*, northern: *puberulus*, near San Francisco.

April and November: *heterodoxa*, one example, Los Angeles County: *monticola*, Bear Valley, altitude 6,400 feet (Daggett): *tenuestriata* and *macra* are found near San Francisco: *sparsa* is northern: *opacula* and *brunneipes* are without exact locality.

Onychobaris.—*O. densa* is abundant in the flowers of a low plant growing on the sand-dunes at Coronado, July and August: *depressa*, Santa Monica: *austera*, San Diego: *insidiosa* is rather common at Pomona, Pasadena and San Diego: *arguta*, less common than the preceding; foot-hills near Pomona and Pasadena: *audax*, Southern California: *seriata* occurs at San Francisco.

Pseudobaris.—*P. nigrina*, Lake County (Casey).

Trichobaris.—*T. mucorea* and *T. compacta* are found in the flowers of *Datura metilloides* in April and May. The former is less common.

Orthoris.—*O. crotchii*, "California."

Centrinus.—*C. lineellus*, Tejon.

Centrinogyna.—*C. procera*, San Francisco.

Limnobaris.—*L. nasuta*, Pasadena, April and May; on willows: *seclusa*, "So. Cal.;" I have one example from Kern County.

Barinus.—*B. difficilis*, Southern California.

Barilepton.—*B. falciger*, San Bernardino.

Balaninus.—*B. uniformis*, not rare at Pomona, Pasadena, etc.; also found on Santa Catalina Island affecting several species of oaks.

CALANDRIDÆ.

Scyphophorus.—*S. acupunctatus* is not rare in San Diego County: *robustior* is also reported from San Diego County (Horn*): *yuccæ* is abundant in the vicinity of Los Angeles. All depredate on yucca.

Metamasius.—*M. sericeus* is said to have been collected by Gabb in the southern Coast Range.

Cactophagus.—*C. validus*, San Diego, under decomposing *Opuntia;* rare.

Rhodobænus.—*R. tredecimpunctatus*, Riverside, May and June; not common.

Sphenophorus.—*S. simplex* is moderately common and generally dispersed throughout our district from Yuma to the coast: *vomerinus*, Yuma, July; San Diego, February: *pictus*, Santa Monica, Vallecito; not common: *pertinax*, Riverside, May; Santa Monica; abundant about the roots of grass or reeds in low ground: *sayi*, one example at Long Beach in May: *placidus*, specimens from Santa Monica are so referred: *gentilis*, Pomona; one example: *tardus*, not rare at San Bernardino.

Calandra.—*C. granaria* and *C. oryzæ* are both occa-

Cossonus.—*C. crenatus* is abundant under pine bark, in the southern Sierras: *piniphilus* is found in similar situations farther north; my specimens are from the middle regions.

Macrorhyncholus.—*M. protractus* is common in the foot-hills of the Sierra Madre Mountains; the larva lives in the flower stalks of *Yucca whipplei*.

Elassoptes.—*E. marinus* is found on the sea beach; Santa Monica and San Pedro.

Rhyncholus.—*R. dorsalis*, San Diego: *angularis*, Colorado Desert, under willow bark: *oregonensis*, San Bernardino Mountains: *R. spretus*, San Bernardino Mountains, on freshly cut alder. Casey has described *pallens* from the vicinity of San Francisco, and *dilatatus* from "Cal." Wollaston has described from California, *cylindricollis*, *californicus*, and *protensus*, all of which are unknown to American entomologists; but there is doubtless some synonymy involved in Casey's recent descriptions.

SCOLYTIDÆ.

Monarthrum.—*M. scutellare* and *M. dentigerum* have both been taken in March from burrows extending into the solid wood of live-oak; the latter species has been taken on the wing from April to June.

Gnathotrichus.—*G. retusus* is found under pine bark, San Bernardino Mountains, August.

Pityophthorus.—*P. pubipennis* affects alders; swarms have been seen flying in August in the San Bernardino Mountains: *carinulatus*, *confinis*, and *digestus* were all taken by Crotch in the Mojave region. The first-named species as well as *nitidulus* and *puncticollis* occur in the middle Sierras. Le Conte describes *pilosulus* from "Middle California."

Hypothenemus.—*H. striatus* is recorded from both Lower and upper California, and is therefore undoubtedly from our district. An undescribed species is frequently taken in spring, at Pomona, by sweeping and beating in waste places.

Xyloterus.—*X. lineatus*, Sylvania, April (Ricksecker).

Cryphalus.—*C. terminalis* is described from California, but is not recognized by any of our authors.

Xyleborus.—Specimens of *xylographus* have been taken on the wing in spring at Pomona, Pasadena, and Ojai Valley: *cœlatus* is represented by a single example taken in the San Bernardino Mountains.

Dryocœtes.—*D. septentrionis*, Sylvania, April (Ricksecker).

Xylocleptes.—*X. cucurbitæ* is widely diffused; the author has taken it at Pomona from April to November.

Tomicus.—*T. confusus* is moderately common under pine bark, San Bernardino Mountains: *plastographus* and *latidens* occur in the middle Sierras.

Micracis.—*M. hirtella*, Pomona; not common. An

Hylesinus.—*H. aspericollis* is not rare in the southern Sierras: specimens referred to *imperialis* have been seen from the vicinity of San Francisco: *sericeus* is found in the middle and northern Sierras.

Phlœosinus.—*P. punctatus* is common throughout the Sierras: *cristatus* occurs farther north; it has proved injurious to cypress hedges near Sacramento.

Chætophlœus —*C. hystrix,* San Diego; rare.

Carphoborus.—*C. simplex,* Mojave Desert.

Dendroctonus.—*D. terebrans* is common and *D. frontalis* rather scarce; on pines in the Sierras: *similis* and *simplex* are said to occur in the State.

Hylastes.—*H. macer* and *H. longus* are common in the coniferous forests throughout the State: *gracilis* is found in the Tahoe region: *nigrinus* is common in the more northern parts of the State; I have seen one example in Mr. Fuchs' collection labeled San Diego County.

Hylurgops.—*H. subcostulatus* occurs throughout the Sierras: *granulatus* and *rugipennis* are thus far known only from the more northern parts of the State.

ANTHRIBIDÆ.

Toxotropis.—*T. approximatus* was beaten from dead twigs of live-oak, near Pomona, in June.

Gonops.—*G. fissunguis,* "Big Trees."

Brachytarsus.—I have seen four species from the State, none of which are identified with certainty; one of these is certainly exceedingly close to, if not identical with, the eastern *alternatus*; specimens have been taken at Redondo by sweeping. Two other species are from Southern California.

The following table shows by families the number of genera and species mentioned in the preceding pages, both for Southern California and for the entire State. Between these is introduced for comparative purposes similar data from Dr. Hamilton's List of the Coleoptera of Southwestern Pennsylvania. The number of species named by Dr. Hamilton being substantially equal to the number here recorded from Southern California, a comparison of figures will give a very good idea of the relative abundance of the various families on the Atlantic and Pacific slopes. A few numbers in the Pennsylvania list are marked with an asterisk (*) to indicate that in these cases the record is incomplete:—

FAMILY.	Southern California.		Southwestern Pennsylvania.		California.	
	Genera.	Species.	Genera.	Species.	Genera.	Species.
Cicindelidæ	2	15	1	6	3	20
Carabidæ	49	188	61	263	63	318
Amphizoidæ	1	1	.....	.....	1	1
Haliplidæ	2	3	2	2	2	3
Dytiscidæ	19	41	20	33	19	60
Gyrinidæ	2	3	2	6	2	4
Hydrophilidæ	19	52	14	38	19	70
Platypsyllidæ	.....	.....	.....	.....	.....	.....
Leptinidæ	.....	.....	1	1	.....	.....
Silphidæ	10	20	10	30	17	37
Scydmænidæ	5	6	6	21	9	17
Pselaphidæ	13	20	23	56	21	61
Staphylinidæ	83	277	71	200*	107	462
Trichopterygidæ	5	10	3	3*	6	20
Hydroscaphidæ	1	1	.....	.....	1	1
Sphæriidæ	1	1	.....	.....	1	1
Scaphidiidæ	1	2	3	6	1	2
Phalacridæ	4	11	3	7*	4	12
Corylophidæ	4	7	5	7	4	7
Coccinellidæ	18	56	15	34	21	71
Endomychidæ	2	3	8	10	4	7
Erotylidæ	3	3	8	19	3	3
Colydiidæ	10	13	12	14	14	24
Rhyssodidæ	1	1	2	2	1	1
Cucujidæ	8	16	9	19	10	21
Cryptophagidæ	3	9	8	13	3	10
Mycetophagidæ	6	7	5	11	6	7
Dermestidæ	8	18	8	13	8	23
Histeridæ	16	63	15	46	17	77
Nitidulidæ	14	25	22	48	19	35
Lathridiidæ	10	30	5	8*	11	43
Trogositidæ	5	6	6	10	5	10
Monotomidæ	4	6	3	6	5	7
Derodontidæ	.....	.....	1	1	.....	.....
Byrrhidæ	4	8	3	4	5	12
Georyssidæ	.....	.....	.....	.....	1	1
Parnidæ	6	9	6	9	8	15
Heteroceridæ	1	4	1	6	1	5
Dascyllidæ	7	10	9	15	12	18
Rhipideridæ	1	1	.....	.....	1	1
Elateridæ	29	78	38	127	40	162
Throscidæ	2	4	3	3	3	6
Buprestidæ	18	81	15	48	18	94

FAMILY.	Southern California.		Southwestern Pennsylvania.		California.	
	Genera.	Species.	Genera.	Species.	Genera.	Species.
LAMPYRIDÆ	14	21	24	61	16	43
MALACHIDÆ	20	93	4	9	20	162
CLERIDÆ	10	26	14	27	12	30
PTINIDÆ	26	51	23	41	32	72
CUPESIDÆ	1	1	1	2	1	1
LYMEXYLIDÆ	.....	.....	1	1	.....	.....
CIIDÆ	3	6	3	7	5	9
SPHINDIDÆ	1	1	2	2	1	1
LUCANIDÆ	1	1	6	7	3	9
SCARABÆIDÆ	33	92	37	112	38	135
SPONDYLIDÆ	2	2	1	1	2	2
CERAMBYCIDÆ	62	85	74	163	73	152
CHRYSOMELIDÆ	50	124	65	152	61	171
BRUCHIDÆ	2	18	1	6	2	20
TENEBRIONIDÆ	68	187	30	52	75	247
ÆGIALITIDÆ	.....	.....	.....	.....	1	2
CISTELIDÆ	5	14	8	23	5	23
OTHNIIDÆ	1	1	.....	.....	1	1
LAGRIIDÆ	.....	.....	2	2	.....	.....
MONOMMIDÆ	1	1	.....	.....	1	1
MELANDRYIDÆ	4	5	20	28	6	10
PYTHIDÆ	1	2	5	6	4	6
ŒDEMERIDÆ	5	10	3	4	9	18
CEPHALOIDÆ	.....	.....	1	1	2	3
MORDELLIDÆ	4	20	5	36	4	24
ANTHICIDÆ	9	55	7	28	9	81
PYROCHROIDÆ	1	1	2	5	1	1
MELOIDÆ	10	46	5	10	12	56

DESCRIPTIONS OF NEW SPECIES.

1. **Notiophilus obscurus**, sp. nov.

Black, bronzed, sides of elytra broadly but obscurely yellow toward the apex; base of antennæ, tibæ and tarsi more or less pale. Head slightly wider than the thorax, front 8–10 striate. Striæ of elytra scarcely impressed, not effaced at apex, slightly approximated by pairs, the external interspaces faintly alutaceous but shining; there are normally three discal tuberculate punctures or foveæ, one before the middle and two subapical. Prothorax beneath very sparsely punctate. Length 5–5.5 mm.

Habitat:—San Bernardino Mountains, at an altitude of from 6,000 to 7,000 feet.

The above characters are about the only ones that are of general use for comparative purposes in this genus, and therefore a more detailed description is unnecessary. *N. obscurus* seems among our species to be most nearly related to a form occurring in Vermont and the White Mountains of New Hampshire, and which passes as *N. sylvaticus* in collections; this latter differs however by having the sides of the elytra yellow throughout, the striæ impressed and more strongly punctate, the intervals narrower, and the front less numerously striate. The White Mountain species is quite surely not the true *N. sylvaticus*, which is a west coast species (Alaska, Vancouver, Washington) with smaller head and less strongly sculptured elytra, and it is quite as certain that it is very close to the European *N. biguttatus*. The latter agrees very nearly with *N. obscurus* in the color of the elytra, but is otherwise scarcely distinguishable from the New England species.

2. **Dyschirius unipunctatus**, sp. nov.

Small, moderately stout, black with distinct bronze-green lustre, legs and antennæ rufous or brown, the latter somewhat darker apically.

Epistoma bisinuate, the middle tooth much smaller than the outer ones, but always distinct though somewhat varying in prominence; front not very strongly transversely impressed opposite the anterior margin of the eyes, the impression interrupted at middle by a short fine carina; vertex smooth. Prothorax transversely globose, very slightly wider posteriorly. Elytra just perceptibly wider than the prothorax, a little more elongate than in *D. globulosus*; base distinctly margined, striæ fine, very slightly abbreviated at base, gradually finer posteriorly, and almost completely effaced at apex; punctures of striæ fine and somewhat distant, becoming obsolete not far behind the middle; third interspace with a single setigerous puncture near the base. Terminal process of the anterior tibæ only slightly curved, and a little shorter than the subapical interior spur; outer margin with a moderate subapical tooth and a second fainter one above it.

Length, 2.5 mm.

Habitat:—Pomona, San Bernardino, Riverside.

Rather smaller than any other species in our fauna and distinguishable from all by the unipunctate third interval of the elytra.

Some years ago in a letter from a friend, Mr. F. Blanchard of Tyngsboro, Mass., the writer's attention was called to the presence of two small teeth in the clypeal emargination of certain of those species of *Dyschirius* in which the elytra are pale at tip. Mr. Blanchard at that time expressed a doubt as to the propriety of referring all eastern specimens to *D. hæmorrhoidalis*, and a recent comparison of my material with the types of *D. terminatus* and *D. analis*, and presumably of authenmentioned, and being moreover subject to some individual variation are difficult to define.

Striæ of elytra effaced at apex.
  Clypeal emargination truncate at middle; front rather deeply and sharply transversely impressed, vertex smooth. [New York, Kansas, California (Le Conte)]............*D. terminatus* Lec.
  Clypeal emargination bidentate at middle.
    Strial punctures coarse, front and vertex smooth, front rather deeply transversely impressed; size larger. [Kansas, Ohio (Le Conte)]......................*D. hæmorrhoidalis* Lec.
    Strial punctures comparatively fine, front and vertex rugose. front scarcely or feebly transversely impressed, size smaller. (Texas—Luling and El Paso).......*D. duplicatus*, sp. nov.
Striæ of elytra very feeble but traceable at apex; strial punctures fine, front and vertex rugose, front scarcely or feebly transversely impressed; clypeal emargination bidentate. (Massachusetts, eastern New York)....................................*D. affinis*, sp. nov.
Striæ distinct at apex, and coarsely punctate; front smooth, not distinctly transversely impressed; clypeal emargination bidentate. (California—Colorado River).......................*D. analis* Lec.

Of the above species, *D. duplicatus* and *D. affinis* are most closely related and may prove to be geographical races of the same species; both are quite distinct from *hæmorrhoidalis*.

3. Schizogenius seticollis, sp. nov.

This name is proposed for a species which has been quite widely distributed under the name *S. pluripunctatus*, from which and from all other species known it is distinguished by the prothorax having seven or eight marginal setæ instead of the usual two. The form is only moderately depressed, the color black, legs piceous or rufopiceous, the tibiæ and tarsi usually paler. The alternate elytral intervals beginning with the third are 10–12 setose.

Length, 4–5 mm.

Generally distributed west of the mountains and rather common at Pomona, Pasadena, Riverside, and other places in Southern California, and as far north as Sylvania (Ricksecker).

4. Schizogenius validus, sp. nov.

Elongate, stouter than usual, polished black, antennæ and legs brown. Head and prothorax proportioned and sculptured above nearly as in *S. depressus*. Elytra parallel in basal three-fifths, rather strongly striate, striæ distinctly punctate, the punctures becoming smaller toward the apex, where they are nearly obsolete; third, fifth and seventh intervals 5–7 setigerous punctate. Legs about as usual; front tarsi strongly dilated (at least in the male), joints 2–4 being nearly or quite twice as wide as long, the fifth joint distinctly narrowed from base to apex; the claws one-half the length of the joint.

Length, 6.5 mm.

Several examples taken by Dr. H. G. Griffith on the Rio Verdi in central Arizona.

This is our largest species. It most nearly resembles in size and color *S. seticollis*, but is larger, with more distinctly punctate elytral striæ; the intervals with fewer, and the thorax with but the two usual setigerous punctures. The throat is distinctly less punctate than usual, and the front tarsi are more widely dilated than in any other species known to me.

5. Schizogenius litigiosus, sp. nov.

This name is suggested for still another form, occurring in middle and northern California, which has heretofore passed as *S. pluripunctatus*. It is really very

The true *S. pluripunctatus* is a very different thing, separable from all our other species by the impunctate elytral striæ, and by the very numerous setæ (15 or more) of the intervals.

Mr. Blanchard observes *in litt.* that the males of all species of the genus known to him have two setæ near the anterior margin of the last ventral, which are lacking in the females.

6. **Trechus pomonæ**, sp. nov.

Very near *T. ovipennis*, from which it differs in its slightly more transverse prothorax, longer elytra with distinct indication of humeral angle, traces of striæ excessively faint, two dorsal punctures—basal and apical—and in the antennæ, which are a trifle less stout.

From *T. barbaræ* it must differ in its more transverse thorax, distinct frontal impressions, two dorsal punctures (instead of three), and smaller size.

Three examples seen from Pomona and Pasadena.

7. **Pterostichus inermis**, sp. nov.

Moderately elongate; piceous black, shining; legs dark rufous or rufopiceous. Frontal foveæ distinct. Prothorax wider than long, widest at about the apical third; sides rather narrowly margined, strongly arcuately narrowed behind, not in the least sinuate before the hind angles, which are obtuse and rounded; base three-fourths as wide as the apex, margined at the sides; apex feebly emarginate, anterior angles not prominent, rounded; basal impressions rather feeble, the outer entirely wanting. Elytra scarcely wider than the thorax, parallel, sides feebly rounded; humeri slightly dentate; striæ fine, impunctate; scutellar striæ short, joining the sutural stria. Legs moderate; front face of middle thighs bisetigerous; first joint of hind tarsi with lateral groove. Prosternum usually feebly margined at tip but somewhat variable. Last ventral with two setæ each side in both sexes. In the male the two middle setæ are much more widely separated from each other than from the lateral setæ while in the female the four are nearly equally spaced.

Length, 10–12.5 mm.

Three males and three females from the foot-hill cañons of the Sierras near Pomona; March, April, September.

P. inermis belongs to the first section of the genus (elytra without dorsal puncture), and is sufficiently distinct from all described forms to warrant its description in advance of a general revision of the genus. The obtuse hind angles of the thorax with the sides not sinuate before them is a rare character in the genus.

8. **Cœlambus pedalis,** sp. nov.

Resembles *C. medialis* but is slightly larger, a little more densely punctate, and with the elytra more completely and uniformly infuscate. Posterior femora with numerous coarse punctures which outwardly tend to coalesce into oblique rugæ. The claws of the front tarsi are similar in the male, but in this sex the middle tibiæ are quite strongly sinuate on the inner side toward the apex.

Five examples from Pomona and Riverside have been seen by the writer.

In *C. medialis* the hind thighs bear the usual line of fine setigerous punctures only.

9. **Cœlambus femoratus,** sp. nov.

Superficially almost exactly like *C. nubilus*, but differing from it and all others by all the femora being sinuate beneath near the knee, the margins strongly laminate at apex. The tibiæ are pedunculate at base, then suddenly widened and nearly parallel, instead of gradually widening from base to apex as in all other species examined.

are dissimilar. In these two species the disparity is very striking; but Crotch apparently failed to note its existence in numerous others. In *C. medialis*, *C. fraternus*, *C. femoratus* and *C. nubilus*, and perhaps others, the anterior (inner) claw is slightly broader and more strongly bent toward the base than its fellow, but the claws do not differ materially in length. In *C. fraternus* the front tarsi are much more strongly dilated in the male than in the same sex of *C. medialis*. *C. lutescens* is certainly very close to *C. medialis*, and I have not discovered any reliable means of separation; my specimens, however, of *C. lutescens* are all female, and it is possible the male may show good characters for separation.

10. **Ochthebius wickhami**, sp. nov.

Piceo-testaceous, head darker, legs pale; surface shining, feebly bronzed. Sides of thorax arcuate to middle, where they are slightly sinuate and abruptly, deeply emarginate, the angle prominent and acute; transparent border wide behind the sinuation, exceedingly narrow in front, but extending to the apical angles; disk sparsely punctate; median line deep, entire; anterior discal foveæ wanting, posterior deep; lateral grooves as in *O. discretus*. Elytra broad, sides arcuate; striæ feebly impressed, punctures not closely placed; intervals much wider than the striæ on the disk, where they are nearly flat; toward the sides the striæ are deeper and closer, the intervals more convex.

Length, 2 mm.

Taken in numbers at Winslow, Arizona, by Mr. Wickham.

The form of the thorax is very much like that of *O. discretus*.* *O. wickhami* comes under "4" of Horn's table, and should precede *O. rectus* under the caption—sides of thorax arcuate in front, transparent border narrowly attaining the front angles. The author dedicates the species with much pleasure to its discoverer.

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* See Horn's figure, Trans. Am. Ent. Soc., Vol. XVII, Pl. II.

11. Ochthebius costipennis, sp. nov.

Piceous, not at all bronzed, legs brown. Outline and sculpture of thorax nearly as in *O. rectus*, except that the discal foveæ are connected by an impressed line. Elytra deeply striate, the punctures large and closely placed, intervals very narrow and strongly costiform throughout. Length, slightly more than 1 mm.

One example taken by the author at Ventura.

No fuller description of this singular specimen is needed, as it agrees in all respects except size and sculpture, as noted, with *O. rectus*. I would not have ventured giving this specimen a name, relying solely on my own judgment, as it seemed possibly an aberrant *O. rectus;* but Mr. Frederick Blanchard, to whom the specimen was sent, returned it as "n. sp. near *O. discretus;*" and Mr. Liebeck, after carefully comparing it with Dr. Horn's material, wrote "There is nothing like it in the collection." I have seen scores of *O. rectus*, but have never seen a specimen approaching this one in size or character of elytral intervals. It should follow *O. rectus* in a cabinet arrangement.

12. Tropisternus salsamentus, sp. nov.

This name is proposed for a species related to *T. sublævis* and *T. californicus*. Though probably nearer to same tarsi in the male is more or less angulate near the middle in *T. salsamentus*, never so in *T. californicus*. The raised line or crest at the tip of the last ventral segment is stronger in *T. salsamentus* and projects beyond the margin of the segment; less developed and terminating a little before the apex in *T. californicus*.

Specimens have been sent to Mr. Blanchard, who has kindly compared them with *T. sublævis*. He reports that the latter species differs in being larger, broader behind, sides of thorax not sinuate posteriorly, mesosternal keel less strongly punctured, and the apical process of the last ventral less developed.

All the specimens seen (about a dozen) have been taken in April and July by Dr. Fényes and the writer from a small salt lake just back of the ocean beach at Redondo. This lake is much salter than the ocean itself.

13. **Berosus salinus**, sp. nov.

Very similar to *B. infuscatus* in form and size; surface highly polished throughout in both sexes. Head black, with violaceous, green, and golden reflections; punctures not dense, vertical carina nearly obsolete. Thorax yellowish testaceous, nearly twice as wide as long; sides nearly straight and slightly convergent in front; angles rounded; punctures sparse, finer and coarser intermixed, a little closer at the sides. Elytra greenish testaceous, finely striate, striæ punctate; third interval with a confused line, fifth with a regular series of punctures; the others nearly or quite impunctate; sutural tips very slightly truncato-emarginate.. Beneath piceous; abdomen not cristate; fifth ventral with a broad lobe at the bottom of the emargination; mesosternal crest acuminate; legs entirely pale, femora finely punctate and pubescent in rather less than basal half.

Length, 3.7–4.5 mm.

Redondo and Santa Barbara, in salt lake or pools.

The maculation is almost entirely absent, there being only a small divided thoracic spot, and a small diffuse shade on the second and third intervals of the elytra at one-third from the apex. The males have the first two joints of the front tarsi rather narrowly dilated and papillose beneath. By Horn's table *B. salinus* would be associated with *B. styliferus*, but is remarkably distinct from any in our fauna by the peculiar elytral sculpture.

Chætarthria.

Three species of this genus are more or less plentiful at almost any time of the year, by washing the sandy margins of streams throughout Southern California,—viz.: a pale form, *C. pallida* Lec.; a slightly larger, piceous black species with pale legs and antennæ, *C. nigrella* Lec.; and a smaller black species for which the name *C. minor* is now proposed. It may always be distinguished from *C. nigrella* by its distinctly smaller size (1.2–1.5 mm. for *C. minor* and 1.6–2.2 mm. for *C. nigrella*) and is moreover generally darker in color throughout, this being especially noticeable of the legs and antennæ. The form is also a little less broad in *C. minor*, the third joint from the last of the antennæ is smaller and more transverse, and the antennal club is less elongate.

A somewhat careful examination of our four species shows that well defined specific characters are not easy to find. It appears not to have been noticed that there is a sexual difference in the form of the front tibiæ. In the females the tibiæ are gradually broader to tip, while

14. Philhydrus conjunctus, sp. nov.

Elongate-oval, less convex than *P. carinatus*, piceous black, the sides of the thorax paler. Punctuation as in *P. carinatus*, but with the lines of coarser punctures on the elytra less well defined. Prosternum not carinate, mesosternal lamina well developed, the lower edge horizontal, the anterior edge a little sinuate and slightly oblique, the free angle mucronate. Abdominal apex not emarginate. Thighs piceous, tibiæ and tarsi paler. Claws of anterior tarsus in the male unequally toothed, the tooth of the front or inner claw large, lobe-like, and slightly everted; that of the other claw smaller but strong and subrectangular. Claws of middle and hind tarsi similar, strongly angulate at base.

Length, 4-4.5 mm.

Described from two males and one female taken at Lake Tahoe.

P. conjunctus much resembles *P. carinatus*, but is smaller and less convex, and by the palpal characters belongs to a different section of the genus. The claws are toothed somewhat after the manner of *P. hamiltoni*, but this latter species and its allies differ in color and in having the claws of the posterior tarsi sinuate in the male.

No mention seems to have been made of the fact that several species in this genus show a very small emargination at the apex of the last ventral segment, which is, so far as the writer has examined, very constant and entirely independent of sex. This emargination is present in *P. carinatus*, *P. cinctus*, *P. californicus*, *P. ochraceus, and P. nebulosus* (in the last two, much alike and deeper than in the others), while *P. perplexus*, *P. diffusus*, *P. hamiltoni and P. reflexipennis* do not show a trace of it. Of *P. fucatus*, *P. cuspidatus*, and *P. consors* nothing can be said, as no specimens are at hand.

The small, pale species, *P. ochraceus* and *P. nebulosus*, agree with the larger species of the same color, *P. diffusus*, etc., in the form of the posterior claws in the male, a character seemingly of more importance in this genus than the carination of the prosternum and the form of the mesosternal lamina; they should therefore be placed together instead of at opposite ends of the genus as at present.

15. **Creniphilus elegans**, sp. nov.

Oblong-oval, slightly broader behind, not very convex, black, shining, without aeneous lustre, sides of thorax narrowly pale, elytra with a rather abrupt pale border which is wider behind. Punctuation distinct, but fine and rather sparse, a little stronger on the elytra. Antennæ seven-jointed, testaceous; club piceous: Femora piceous; trochanters, knees, tibiæ, and tarsi testaceous. Hind femora almost impunctate and without trace of strigosity; all the tarsi subequal in length to their respective tibiæ; claws slender, simple. Prosternum carinate, the carina obtusely prominent in front; mesosternal keel long, strongly protuberant. Abdomen densely punctate, subopaque.

Length, 2–2.8 mm.

Described from five examples taken by the writer in a salt lake at Redondo. Specimens collected by Mr. Hubbard in the salt springs at Salton, on the Colorado Desert, have recently been seen.

The difficulty of counting the intermediate joints of the antennæ in this genus is well known; nevertheless I am confident of the correctness of the statement above made; and if this is so, *C. elegans* agrees in an-

16. Agathidium virile, sp. nov.

Moderately contractile, piceous black, apex of elytra and margins of thorax a little paler, legs brown. Head finely, sparsely punctate. Prothorax less than twice as wide as long, hind angles broadly rounded, front angles less broadly rounded, surface still more finely, obsoletely punctulate. Elytra longer than wide, distinctly but rather sparsely punctate, sutural stria deeply impressed except toward the base; side margin when viewed in profile subangularly rounded near the base. Metasternum alutaceous, obsoletely punctulate, without oblique elevated ridge. Mesosternum continuous with the metasternum, carinate in front. There is the usual difference in the tarsi of the sexes, and in addition the posterior femora are broader and obtusely angulate near the apex in the males, and in the same sex there is near the middle of the front margin of the metasternum a transversely oval fovea bearing a tuft of erect hairs.

Length (extended), 3 mm.

Riverside, Pomona and Pasadena.

This species may at once be known by the sexual characters of the male. It should be placed between *A. californicus* and *A. revolvens* in Horn's table.

17. Lomechusa angusta, sp. nov.

Red-brown, parallel, much smaller and narrower than either *L. cava* or *L. montana*. Upper surface, except the abdomen, minutely reticulate and sparsely, finely punctate, the head and prothorax somewhat dull, the elytra more shining; abdomen both above and beneath polished and nearly impunctate. Pubescence very fine, short and sparse; represented on the abdomen by longer erect setæ, which on the dorsal surface are arranged in a more or less regular transverse line on each segment, but are longer and more numerous beneath. Front concave; eyes situated at more than their own length from the hind margin of the head. Antennæ a little longer than half the body, the intermediate joints about twice as long as wide; terminal joint just visibly longer than the two preceding united. Prothorax nearly twice as wide as long, broadly emarginate in front throughout the width of the head, the front angles broadly rounding into the sides, which are feebly sinuate behind the middle, and thence slightly divergent to the hind angles, the latter nearly right and very narrowly rounded; base rather strongly arcuate at middle, sinuate laterally, side margins broadly reflexed. Elytra slightly wider than the prothorax, proportioned as in our other species. Abdomen and legs also as usual in the genus.

Length, 3.25 mm.

Pasadena and Redondo.

One example from each of the above localities is all that has been seen. The Pasadena specimen was taken with ants in a large oak gall, in February, by Dr. Fényes; and the Redondo specimen was picked up by Mr. Daggett on the beach in early spring. As indicated in the description, *L. angusta* is readily distinguished from both *L. cava* and *L. montana* by its small size and narrow form. In both the former also the last antennal joint is slightly but visibly shorter than the two preceding united, while in *L. angusta* it is slightly longer than the two preceding. *L. cava* and *L. montana* resemble each other much more closely, the size and form being nearly the same. In *L. cava* the sides of the prothorax are distinctly sinuate, the width being as great in front of the sinuation as it is posteriorly; while in *L. montana* the sides are not evidently sinuate, but diverge to a point just before the hind angles. In *L. angusta* the prothorax is widest at the hind angles. The intermediate joints of the antennæ in *L. cava* are decidedly more elongate than in *L. montana* or *L. angusta*.

18. **Heterothops carbonatus**, sp. nov.

This species agrees tolerably well with Horn's description of *H. fumigatus*, except in the following particulars: Average size a little smaller; color deep black throughout except the legs, which may be more or less the latter species the eyes are distant very nearly their full length from the nuchal constriction.

H. pusio is much smaller, brownish in color, with a differently punctate head, and differently proportioned antennal joints.

H. occidentis is also much smaller, very slender, entirely testaceous, with exceedingly small eyes, and the last ventral of the male deeply cleft.

19. **Baptolinus punctiventris**, sp. nov.

Slender, rufous, elytra blackish, the basal margin, or at least the tips of the humeral umbones, less dark. Head, exclusive of mandibles, quadrate; hind angles broadly rounded, surface feebly alutaceous, excessively minutely, sparsely punctulate, with setigerous punctures as follows: a puncture over the insertion of the antennæ, a larger one above the eye, two smaller ones on the front, and a series of about eight at the hind angles and along the posterior margin; beneath with a few moderately fine punctures. Antennæ not reaching the middle of the thorax, proportioned as usual. Thorax as wide as, or very slightly wider than the head, parallel, longer than wide, angles rounded; dorsal series of two punctures, one near the middle, the other near the front margin and toward the side; otherwise impunctate except for the usual marginal setigerous punctures. Elytra barely equal in length to the thorax, glabrous except for the marginal setæ, and a series of about five shorter setæ in the sutural stria; surface very finely, indistinctly punctulate. Abdomen rather sparsely, but unusually coarsely muricately punctate, especially beneath. Last ventral of male with a broad and shallow but distinct triangular emargination.

Length, 5–6 mm.

Five specimens from Lake Tahoe and Vancouver Island. Mr. Schwarz writes that he has taken *B. punctiventris* in the mountains of Utah. It is rather common under bark, at Lake Tahoe.

20. **Actobius formosus**, sp. nov.

Form slender, piceous black; prothorax, legs, apical margin of elytra, posterior margin of ventral segments, and basal three (sometimes two) joints of antennæ, yellow. Antennæ slender, about as long as the head and prothorax, tenth joint nearly square, preceding scarcely as broad as long. Head slightly longer than wide, sides behind the eyes nearly parallel, surface coarsely punctate, with a median smooth space. Prothorax one-half longer than wide, scarcely as wide as the head, distinctly narrowed behind; sides more sparsely and a little less coarsely punctate than the head. Elytra wider than the prothorax, not or but very little longer, longer than wide, usually with distinct greenish lustre; finely, sparsely punctate. Abdomen finely, moderately, densely punctate, moderately shining, beneath a little more strongly punctate than above.

In the male the front tarsi are rather strongly dilated, the last ventral with a small triangular emargination, which is broader than deep, and a triangular impression.

In the female the front tarsi are moderately dilated, the last ventral entire.

Length, 3.5–6.5 mm.

Pasadena and Pomona. Found along the margins of streams; March to October.

A. formosus is allied to *A. pœderoides* and *A. elegantulus*, but is larger than either and of a different color, which remains constant in the ten examples studied. The abdominal punctuation is much closer than in *A. elegantulus*, but less dense than in *A. pœderoides*. It differs from the latter species also in its longer thorax, which is more narrowed behind.

Orus.

The species of this genus inhabit the true Pacific Coast region of California, and if secondary sexual

21. Orus parallelus *Casey.*

The species is described from the female and is unknown to the writer. The thorax is described as being nearly as long as the elytra and rather densely punctate; characters which separate it from the following new forms, all of which agree nearly with *O. punctatus* in these particulars.

22. Orus punctatus *Casey.*

Male:—Posterior margin of fifth ventral with a median lobe which varies somewhat in development, the lobe and posterior half of the segment distinctly longitudinally impressed; sixth segment broadly, deeply emarginate, the sides of the emargination concave, the apex rather narrowly rounded; base of segment in front of the emargination rather feebly impressed, the impression more or less covered by the lobe of the fifth segment.

23. Orus fraternus, sp. nov.

Male:—Fifth ventral truncate or very broadly, feebly emarginate, feebly impressed; sixth ventral broadly, deeply emarginate, nearly as in *O. punctatus*, the segment feebly impressed before the emargination. As indicated by the series studied, the color is here never so black as in *O. punctatus*, being rather piceous or brownish piceous; but this difference is not so marked as to enable the positive separation of the females.

Seven examples from Pomona and San Bernardino.

24. Orus montanus, sp. nov.

Male:—Fifth ventral broadly, feebly emarginate and very slightly impressed; sixth, triangularly emarginate, the emargination much less deep than in *O. punctatus*, the sides not at all concave, the apical angle a little less than right, and but slightly rounded. The size is a little larger and the form quite distinctly more robust than in any of the other species here mentioned, the thorax being scarcely at all narrower than the head, as is usual. The color is nearly black.

Two examples, a male and a female, were taken some years ago in the San Bernardino Mountains, at an elevation of 5,000 feet.

25. **Orus femoratus**, sp. nov.

Male:—Fifth ventral with a short, broadly rounded median lobe longitudinally impressed, the impression longitudinally divided at base by a short median raised line, and becoming posteriorly a spoon-shaped depression which is limited at the sides by acutely elevated folds or ridges; sixth ventral with a deep oblong-elliptical emargination which is widest at the middle of its depth and obtusely rounded in front, the base of the segment in front of the emargination with a smooth triangular impression having abrupt side margins. Hind femora much stouter than usual, and fully as broad as the anterior; lower edge acutely, sinuately compresso-carinate in basal half.

Represented by a single male collected by the author in Marin County.

In all the above species antennal joints two–four are distinctly, progressively shorter and not subequal, as is described of *O. parallelus*.

26. **Leptorus californicus**, sp. nov.

Slender, parallel, head and thorax rufotestaceous; elytra, metasternum, and abdomen, fuscous, the former with the suture narrowly, indefinitely paler, antennæ and legs pale; surface subalutaceous and dull except the thorax, which is feebly shining. Antennæ proportioned as usual. Head, as limited anteriorly by a line tangent to the anterior margin of the eyes, nearly square; sides behind the eyes parallel, twice the length of the eyes, hind angles narrowly rounded; base truncate, without median sinuation; surface densely, very finely punctate. Thorax narrower than the head, a little longer than wide, sides parallel, front angles strongly obtuse and rounded, base elliptically rounded; surface excessively finely, and more

In *L. texanus*, which occurs at Yuma, the sixth ventral has a deeper emargination, which is rounded at bottom and with nearly parallel sides.

27. Leptorus longipennis, sp. nov.

Very slender, piceous, head and thorax dark rufous, legs and antennæ paler; surface more shining than in *L. californicus*. Sides of thorax slightly convergent toward the base; elytra fully one-third longer than the thorax. Punctuation much as in *L. californicus*, that of the head a little coarser above and distinctly so beneath.

Length, 2.2 mm.

Described from a single female specimen taken at Pomona.

This is the first species of the genus known to occur west of the mountains. It is at once separable from any species known to me by the unusual disparity in the length of the thorax and elytra, and by the decidedly stronger punctuation of the lower surface of the head.

28. Scopæus armiger, sp. nov.

In most features of size, form, and sculpture, and especially in the male sexual characters, this species is very similar to the eastern *S. dentiger*.* It is a little more slender, the hind angles of the head less broadly rounded, the prothorax distinctly narrower than the elytra, the latter comparatively more elongate than in *S. dentiger*; the legs are brown. The male characters are substantially the same, with the following exceptions: The emargination of the sixth ventral is a little less broadly rounded at its apex, the inner sinuate margin of the posterior femora is a little more strongly serrate, and the hind tibiæ are not serrate internally.

The only specimen seen by me is a male taken at Pomona.

29. Stilicus occiduus, sp. nov.

Form and size the same as that of *S. angularis*, color more nearly piceous. Head above rather finely and densely punctate, not rugose; below, rufopiceous, polished, rather sparsely punctate; sides behind the eyes a little convergent, hind angles rounded, base truncate. Thorax densely punctate, a narrow, smooth, slightly elevated median line. Elytra more finely and sparsely punctate, tips narrowly pale; abdomen very finely, moderately densely punctate.

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* Trans. Am. Ent. Soc. 1880, p. 179.

Length, 4 mm.

Described from one male and two females taken at Los Angeles and in Kern County.

S. occiduus is allied to *S. quadriceps* and *S. opaculus* by the punctuation of the upper surface of the head; but it is at once distinguished from these two species by the sparse punctuation of the lower surface, which is nearly as in *S. angularis*. In the male the fifth ventral segment is toothed at the middle of the hind margin, and the sixth is triangularly emarginate.

30. Pseudopsis detrita, sp. nov.

Piceous brown, legs and antennæ paler, surface dull, sparsely pubescent. Head three-fourths as wide as the prothorax, very finely punctulate, scarcely evidently strigose; eyes moderate, tempora subequal in length to the eyes. Antennæ shorter than the head and prothorax; intermediate joints submoniliform, outer joints gradually more transverse, the terminal nearly as long as the two preceding united. Prothorax transverse, a little narrower than the elytra, widest just behind the middle, sides nearly evenly, moderately strongly rounded, not sinuate before the angles, which are obtuse, the anterior less distinct; apex truncate; base arcuate, a little sinuate within the angles; surface finely not closely punctate, the disk with four obtuse and slightly elevated longitudinal lines; the two intermediate obsolete toward the apex. Elytra scarcely as wide as long, a little

Sierras, occurring with *P. obliterata* and *P. minuta.* It is rather close to *P. obliterata,* but the latter species is on the average a trifle larger, the head and thorax are distinctly longitudinally strigose, the tempora are longer, the antennæ a little stouter, and the impressed lines of the dorsal surface of the abdomen are more strongly arcuate. In *P. obliterata* the thorax is almost always noticeably paler than the head and elytra, but never distinctly so in *P. detrita* in my experience.

31. **Pseudopsis minuta**, sp. nov.

Yellowish brown or darker, head piceous, antennæ, legs, and tip of abdomen paler. Punctuation very fine anteriorly, more distinct on the abdomen; pubescence short, sparse, and indistinct. Head a little narrower than the prothorax, with three acute and entire longitudinal carinæ, one median, the others lateral; tempora about equal to the diameter of the eye. Prothorax a little narrower than the elytra, transverse, sides parallel, feebly arcuate, and at the middle indistinctly subangulate; disk with four equidistant and nearly straight longitudinal carinæ. Elytra as long as wide, each acutely tricostate; the two inner costæ curved inwardly at the apex. First four dorsal segments of the abdomen strongly arcuately impressed at base, their posterior margins bearing a series of widely spaced stout scales.
Length, 1.7-1.9 mm.

Found in the cañons of the southern Sierras.

32. **Bledius deceptivus**, sp. nov.

Rather robust, piceous black, elytra brownish black, legs and antennæ, except the outer joints, rufotestaceous. Head, apical portion of prothorax, and abdomen, finely reticulate; surface shining throughout, except the head, which is but feebly so; pubescence pale, short and sparse, longer on the abdomen, especially beneath. Head, including the eyes, slightly narrower than the prothorax; antennal prominences moderate, polished; epistomal tubercles nearly obsolete; frontal suture arcuate, sharply defined; vertex evenly convex, the median fovea small; surface behind the frontal suture rather coarsely but feebly punctate, the punctures lacking along the median line, otherwise separated by about their own diameters. Second joint of antennæ a little longer than the third, joints six to ten gradually wider and slightly transverse. Prothorax a little wider than long, sides parallel and nearly straight in slightly more than apical half, then broadly rounded and convergent to base, the basal angles rounde and scarcely defined; the surface rather coarsely, moderately, deeply punctate, punctures a little closer at the sides, but separated on an average by their own diameters; impressed line not very deep but sharply defined throughout. Elytra a little wider, and at the suture about one-fifth longer than the prothorax, slightly wider posteriorly; punctures finer than on the prothorax, separated by about their own diameters. Abdomen above finely, sparsely punctate, beneath more closely, less finely punctate. Prosternum finely, longitudinally carinate before the coxæ; episterna narrowed in front and nearly flat. No sexual characters noted.

Length, 4.8 mm.

One example from Kern County.

The thorax is acutely margined, the front coxal cavities short and closed, thus making it a member of the *semiferrugineus* group of Le Conte. It is evidently near *B. opacifrons* Lec., but the distinctly, coarsely punctate head and other differences in detail mark it as quite surely distinct. It is a little smaller, but superficially much like *B. armatus*, which occurs in the same region; the latter, however, has the prosternal sutures obsolete, the prosternum not carinate in front, the sides of the prothorax parallel for a longer distance, and the punctuation sparser throughout.

33. Bledius relictus, sp. nov.

The description of the preceding species applies to this very nearly except in the following particulars: The elytra are distinctly shorter, being but slightly longer than the prothorax, and are rufocastaneous, the base

Punctuation throughout very fine and sparse, the punctures of the surface of the abdomen being especially distant on the dorsal surface but more numerous beneath. Head a little narrower than the prothorax; front evenly convex, transverse suture very fine but distinct, occipital fovea wanting. Antennæ moderately strongly incrassate, the second joint equal in length to the two following, or very nearly so, the sixth to the tenth transverse, eleventh about as long as the two preceding united. Prothorax wider than long, sides nearly straight and parallel in about the apical two-thirds, then rather abruptly rounded and slightly sinuately convergent to the basal angles, which are obtuse but moderately well defined; front angles rather broadly rounded; dorsal line fine. Elytra but little wider and not much longer than the prothorax. Prosternal episterna parallel, almost perfectly flat. Mentum more or less impressed at base.

Length, 2.5-2.8 mm.

Five examples, collected at Pomona, Riverside, and near San Bernardino, have been seen by the writer.

B. clarus is a very pretty species which shows little variation.

35. Bledius rusticus, sp. nov.

Moderately slender, piceous black, prothorax and elytra brownish yellow, legs and base of antennæ testaceous. Head and prothorax densely reticulate granulose, not shining; elytra polished; abdomen finely reticulate, moderately shining; punctuation rather sparse and fine throughout. Head slightly narrower than the prothorax; antennal tubercles moderate; front convex, transverse line faint, not at all impressed; no occipital fovea. Antennæ short, rather strongly widened externally, second joint nearly as long as the two following, the sixth to the tenth strongly transverse. Prothorax a little wider than long, sides feebly rounded and nearly parallel in basal two-thirds, then broadly rounded and sinuately convergent to the basal angles, which are obtuse and rounded; dorsal line fine. Elytra very slightly wider at base than the prothorax and about one-fourth longer, a little wider behind; abdomen gradually wider posteriorly. Prosternum not carinate; mentum broadly concave.

Length, 2.4-3.7 mm.

Three examples taken at Pomona.

The prosternal sutures are parallel with the margin, the hypomera parallel and slightly concave; coxal fissures open. It is therefore to be referred to the *annularis* group, and should probably stand near *B. luteipennis* Lec. The latter is said to have the thorax not wider than long, and the mentum with a small, deep impression near the hind margin.

36. **Eustilbus notabilis**, sp. nov.

Oval, moderately convex, very slightly attenuate behind; head and thorax black, the latter a little paler at the side margin, elytra rufous, under surface, legs and antennæ rufous or rufotestaceous. Upper surface polished and impunctate throughout, the usual lines of punctures on the elytra being scarcely visible. The surface of the elytra is very finely, transversely strigulose, more noticeably so toward the apex, where the surface lustre is slightly dulled. The sutural stria obsolete at about the basal third; eighth antennal joint slightly transverse; free edge of prosternal process bearing four or five setæ, which are as long as the width of the process; first joint of hind tarsi rather more than half the length of the second; spurs of hind tibiæ a little unequal, distinctly longer than the terminal fringe of spinules, but shorter than the basal joint of the tarsus. There are no sexual differences observable in the seven examples studied.

Length, 1-1.3 mm.

Specimens taken at Pomona.

This is a minute species, easily distinguishable by its color from any other in our fauna.

37. **Exochomus histrio**, sp. nov.

Moderately convex, shining, surface sparsely, very finely punctulate, and finely, feebly reticulate; black throughout except a short parallel humeral stripe and a subapical spot on each elytron, pale. Claws simple.

Length, 2.3-3 mm.

simple seems to have been entirely overlooked. This character enables us to more conveniently tabulate the species, and in fact is the only certain means of separating the two above mentioned.

The series with simple claws includes, besides *E. histrio*, *E. septentrionis* Weise, *E. hoegei* Gorh, and *E. ovoideus* Csy. Weise's name is used here provisionally for a large, strongly punctured species occurring in New England and adjacent states. It agrees with Weise's description in size and most nearly in habitat (*E. septentrionis* was described from the Hudson Bay Region), and there can be little doubt, it seems, as to the correctness of the reference. No mention is made of *E. septentrionis* in Casey's recent Revision of the Coccinellidæ; this is doubtless an oversight. *E. desertorum* Csy. must be considered a synonym of *E. ovoideus* Csy.

38. **Smilia reversa**, sp. nov.

Broadly oval; black, elytra brownish. Thorax polished throughout; punctuation closer and more distinct than in any of our other species; impressed line of front angles distinct, joining the basal marginal line in a continuous curve along the side margin, which is distinctly explanate. Elytra very finely, sparsely punctulate; sutural line visible behind the middle, but scarcely impressed.

Length, 1.25 mm.

Five examples, beaten from conifers, at Lake Tahoe and in the San Bernardino Mountains, at an elevation of from 5,000 to 7,000 feet.

This is our largest species and is conspicuous from the fact that the thoracic punctuation, while somewhat variable, is in general closer and coarser than that of the elytra, whereas it is the reverse of this in all our other species (I do not know *S. coccidivora).* The joining of the apical and basal marginal lines of the prothorax has not been observed by me in any other species. *S. reversa* seems most nearly allied to *S. marginata*.

39. **Hyperaspis excelsa**, sp. nov.

Broadly oval, strongly convex; shining, rather finely punctate; black, elytra with humeral marginal stripe joining a large transverse discal spot, red; a smaller apical spot sometimes present. Male with head, sides of thorax narrowly, front margin still more narrowly, and front legs, yellow. Length, 3.75 mm.

Southern California (Pomona, Pasadena, San Bernardino Mountains); rare.

Marked much like *H. tœniata*, but very much larger and with somewhat different sexual color marks in the male.

40. **Hyperaspis spiculinota**, sp. nov.

Elongate-oval, subdepressed; shining, except the head, which is finely reticulate and somewhat dull; black, with the sides of the thorax, median and apical marginal, and elongate discal spot, yellow. Legs dull yellowish, the femora more or less piceous. Head yellow in the male.

Pasadena and Pomona; not common.

The markings of this species are of the *H. undulata* type, but the humeral spot is never present, and the discal spot is very narrow, elongate, subtriangular, pointed behind, and truncate in front. The marginal

41. Scymnus tædatus, sp. nov.

Oval, thoracic and elytral margins not continuous; dark brown; head, thorax and tip of abdomen yellowish; the thorax with faint piceous clouds at the middle and before the scutellum; elytra each with a small spot before the middle and nearer the suture, another a little larger and posterior to it, and more or less connected with an indefinite apical space, pale. Head evidently punctate; thorax lightly but distinctly punctate at middle, more finely laterally; sides nearly straight in basal two-thirds. Elytra less finely but not closely punctate. Prosternal elevated lines distinct; mesocoxal arcs joining the lateral suture a little before the middle; metacoxal arc incomplete, joining the first ventral suture. Abdomen finely punctate, and with six distinct segments.

Length, nearly 1.5 mm.

Found in the Sierras of Southern California. Several specimens beaten from *Pinus ponderosa.*

By the metacoxal lines this species belongs to Dr. Horn's Group *A*, and may follow *S. bigemmeus.* There are no obvious sexual differences.

42. Scymnus megacephalus, sp. nov.

Oblong, obtusely rounded before and behind, moderately convex, uniformly rufotestaceous throughout. Pubescence rather short, flavocinereous, not very conspicuous but slightly holosericeus in aspect owing to the arrangement of the hairs. Head very large, the eyes almost entirely exposed and separated on the front by distinctly more than twice their own width; punctuation rather fine, the punctures separated by from one to two times their own diameters. Prothorax less than twice as wide as long, the sides evenly, moderately arcuate, the apex evidently though not very much narrower than the base; surface punctate similarly to the head, the disposition and size of the punctures nearly uniform throughout; base not sinuate each side of the middle, the marginal line strictly basal before the scutellum. Elytra oblong, slightly wider than the prothorax, the sides very feebly arcuate, and parallel to a point far behind the middle; punctuation somewhat sparser than on the head and prothorax. Scutellum equilateral, larger than usual. Prosternal ridges strong and entire; mesosternum closely, rather coarsely punctate; abdomen less coarsely and closely punctate than the metasternum. Postcoxal arcs of the metasternum incomplete externally, though nearly reaching the suture; those of the first ventral obliterated externally, the lines reaching about to the apical fourth of the segment and scarcely visibly recurved, the plates punctate like the rest of the segment. Femora stout; claws cleft, the interior portion not very much shorter than the outer in the front pair but more evidently so in the others. Abdomen with six distinct segments.

Length, 2.25 mm.

Described from a single example taken at Pasadena, November 2, 1899.

By the tables given by Horn and Casey, *S. megacephalus* falls near *S. difficilis*, *S. phelpsii*, and *S. nebulosus*, from all of which the more parallel form and large head will at once distinguish it. The sex of the type is not determinable with certainty, but it is probably a female.

43. Scymnus mimus, sp. nov.

Resembles *S. pallens* exactly, and is only separable with certainty by the male characters. These consist of a subtriangular impunctate area surrounded by denser suberect pubescence at the middle of the posterior margin of the first ventral, and the strongly impressed sixth ventral. In *S. pallens* the first ventral of the male is unmodified, and the last is but feebly impresso-emarginate. In *S. mimus* the abdominal punctuation is distinctly finer and sparser, and there are but two pale segments, while in *S. pallens* the last three are usually pale.

There are two males in my collection, from Southern California (Riverside and Pomona); the female has not yet been identified.

44. Scymnus dentipes, sp. nov.

with it in collections. For its discovery we are indebted to Mr. Frederick Blanchard of Tyngsboro, Mass., who finds it not uncommon on pitch pines in his vicinity.

45. **Languria californica**, sp. nov.

Elongate, parallel, greenish black, head and prothorax red. Antennal club five-jointed, head moderately punctate. Prothorax longer than wide, sides feebly rounded, a little more strongly so in front, subsinuate before the hind angles; surface strongly, rather numerously punctate, basal striolæ short, distinct. Elytra rather deeply punctate striate, intervals somewhat convex, each with a more or less regular line of excessively fine and indistinct punctures bearing very fine short hairs. Beneath rather sparsely but strongly punctate throughout.

Length, 6.5 mm.

One example taken at Redondo, in April, on *Astragalus crotalaræ.*

L. convexicollis, the only other Californian species of the genus, is much larger, with more convex thorax, six-jointed antennal club, and generally feebler sculpture. *L. californica* may be placed between *L. convexicollis* and *L. læta.*

46. **Hister simplicipes**, sp. nov.

Not very robust, black, polished; impunctate above, except along the basal margin of the thorax; elytra dark red at sides and in a subapical transverse line which is interrupted at suture. Thorax not fimbriate, internal lateral stria complete, external scarcely reaching the middle. Elytra with three entire dorsal striæ; fourth short, apical; fifth represented by two or three small punctures near the apex; sutural stria extending in front of the middle; oblique humeral fine, subhumeral wanting. Propygidium moderately coarsely, densely punctate; pygidium densely punctate at base, nearly smooth at apex, which is strongly inflexed. Mesosternum moderately emarginate; anterior tibiæ without spines or teeth except the apical, which is not very strongly bifid; hind tibiæ bispinulose.

Length, 4 mm.

A single example in the writer's collection is from San Diego County.

H. simplicipes is less broad, less convex, and with less red than *H. sellatus*, which occurs in the same region. It is more like *H. militaris*, but very distinct from it and all our other species—except *H. lævipes*—by the non-denticulate outer margin of the front tibiæ. In *H. lævipes* the thoracic margin is fimbriate, and the sculpture different. The characters are such as to exclude *H. simplicipes* from any of the groups as limited in Dr. Horn's synopsis, but it seems best to place it following *H. lævipes*.

There is, in the writer's collection, a single example from San Bernardino County of what may prove to be a distinct species, but which is so close to the species above described, that further specimens are necessary to establish its status. It differs from *H. simplicipes* in being entirely black, with the fourth dorsal stria of the elytra interruptedly continued nearly to the base. There is a small group of well defined punctures between the lateral striæ of the thorax, and near the front angles, which is only feebly evident in *H. simplicipes*.

47. **Saprinus liticolus**, sp. nov.

Oblong-oval, not very convex, black, shining, feebly but not very finely

convex, with numerous coarse, linear punctures, striæ strongly divergent in front, foveæ deep. Anterior tibiæ about octo-serrulato-spinose.

Length, 2.25–3 mm.

Not rare on the sea beach at Redondo.

S. liticolus belongs to Horn's Group VI, and would fall next to *S. vescus* in the tabular arrangement given; the latter species, however, differs in several details, notably the longer, unequal dorsal elytral striæ, and at the time of Horn's writing it was known only from the unique type, which was taken in Texas.

It is probable that *S. liticolus* is confined to the coast line. The only two species occurring in the same situations with which it could be confounded are S. *laridus* and *S. scissus*, both of which are smaller and have a narrower, more convex prosternum, which is scarcely punctate. *S. scissus* is, moreover, of broader form, and *S. laridus* is nearly equally punctate throughout.

48. Saprinus consobrinus, sp. nov.

Closely related to *S. fraternus*, from which it differs in the following details: Head with a single irregular chevron. Prothorax with the sides slightly more convergent, the punctuation scarcely at all strigose at any point. Elytral punctuation very dense, not strigose; scutellar mirror very small, twice as wide as long; dorsal striæ not very distinct; internal humeral entire, but twice interrupted; external humeral short, distinct; oblique humeral very short, occupying the umbone, which is more evidently impunctate than in *S. fraternus*. Anterior tibiæ about 8-denticulate, the upper three teeth very small.

Length, 3 mm.

Specimens taken at Yuma.

S. fraternus, S. consobrinus, S. laxatus, S. mancus and *S. bigemmeus* form a natural section of Horn's Group III, distinguished by the evident sutural stria, and by having the elytra punctured more or less densely over the entire surface except a rather small scutellar mirror, which is well defined in all except *S. mancus*. *S. bigemmeus* is separated by the strongly aciculately strigose elytra; it is the smallest of the group and has never been found far from the California seacoast. *S. fraternus* and *S. consobrinus* have the sutural stria entire, while in *S. mancus* and *S. laxatus* it is indistinct or wanting behind the middle. *S. mancus* is a northern species; *S. laxatus* is larger and less densely sculptured, and is known only from Florida.

49. **Acritus volitans**, sp. nov.

Broadly oval, moderately convex, rufopiceous, legs and antennæ a little paler. Head finely and sparsely, but rather strongly, punctulate. Second antennal joint twice as long as the third, the latter nearly as long as the fourth and fifth together, eighth a little wider than the preceding. Thorax strongly narrowed from the base, the sides broadly arcuate, punctuation fine and rather sparse, nearly uniform throughout; a transverse basal row of larger punctures extending to the middle of the elytra and curved forward in front of the scutellum. Elytra a little more coarsely punctate, the punctures feebly aciculate behind the middle, uniformly distributed, separated by from two to three times their own diameters; marginal stria of the inflexed flanks of the elytra fairly distinct, deeper toward the base; sutural and discal striæ entirely wanting. Pygidium finely, rather sparsely punctate. Prosternum about one-half longer than wide, with a few very feeble scattered punctures; the striæ equally divergent before and behind; meso-metasternal plate very finely, sparsely punctulate at middle, more coarsely at sides and posteriorly; metasternal suture obliterated, its position defined by a transverse row of elongate punctures somewhat similar to those on the prothorax; marginal stria of mesosternum rather broadly interrupted at middle. Anterior tibiæ but slightly broader than the middle.

antennæ and legs testaceous, the femora sometimes darker. Head rather coarsely punctate; antennæ reaching almost to the hind angles of the prothorax. Prothorax about as long as wide, a little narrowed in front, sides moderately rounded just behind the middle, and also slightly so before the hind angles, which are a little acute; surface moderately closely granulate-punctate, disk with two small impressions at the middle of the base, a deeper longitudinal one each side extending to the middle, and an elongate median fovea. The base is slightly longitudinally channeled before the scutellum and between the small basal impressions, the channel is smooth at the bottom posteriorly. There is also in some examples an oblique impression extending from the lateral impressions inward and forward toward the median fovea. Elytra but little wider than the prothorax, nearly parallel, sides slightly sinuate; the rows of punctures feebly impressed; intervals nearly flat, the fourth a little prominent at the base, the sixth finely carinate nearly to the tip. Beneath coarsely, rather densely scabrous-punctate, except the abdomen, which is less roughly sculptured, especially posteriorly.

Length, 2–2.4 mm.

Described from nine examples taken in a small mountain stream near Pasadena.

This is the first species of the genus to be reported from the Pacific Coast; it is not closely related to any of the eastern species.

51. Eurypogon confusus, sp. nov.

Broader and more depressed than *E. niger*, brownish testaceous throughout, shining; pubescence yellowish, inclined backward on the elytra and forward on the thorax. Head sparsely, finely punctate. Antennæ slender, reaching slightly beyond the middle of the elytra, second joint a little more than half as long as the third, the latter nearly as long as the fourth; joints four to eleven subequal. Prothorax twice as wide as long, sides nearly parallel for a short distance at base, then rounded and rather strongly convergent to apical angles; punctuation fine, the punctures quite uniformly distributed and separated by from two to three times their own diameters; disk with two small impressions, about as distant from each other as from the side margin, and a somewhat vague impression extending from the anterior angles obliquely inward toward the discal impressions. Elytra a little wider than the thorax, sides parallel in basal three-fifths, surface faintly substriate, intervals confusedly punctate, the punctures scarcely distinguishable from those of the striæ.

Prosternum and sides of metasternum closely, not finely, punctate; abdomen less closely, middle of metasternum sparsely, more finely punctured. Length, 4 mm.

Described from a single specimen taken at Pasadena by Dr. Fényes.

E. confusus is quite different from *E. californicus* (which is much like *E. niger* in general facies) because of the more transverse prothorax, which is more rounded on the sides, and the confused elytral punctuation.

In notes taken at the time of making comparison with the type of *E. californicus* in the Horn Collection, allusion was made to a difference in the form of the basal lobe of the prothorax, but the difference was not then described and cannot now be recalled.

52. **Horistonotus flavidus**, sp. nov.

Pale yellowish testaceous, sparsely fulvo-pubescent, shining; of the same form as *H. simplex*, but a little smaller and distinctly more slender. Head densely punctulate with numerous coarser punctures intermixed. Antennæ feebly serrate, very slightly longer than the head and prothorax. Prothorax subquadrate, hind angles not divergent, sides straight and nearly parallel for three-fourths their length; surface moderately convex, with the usual double punctuation, the coarser punctures rather fine and scarcely smaller posteriorly. Elytra but little wider than the prothorax; sides parallel and very feebly arcuate to apical two-fifths, apex elliptically rounded; striæ moderate, rather coarsely punctate at base, more finely

paler color, more shining surface, less widely separated eyes, and coarser punctures of the prosternal flanks. In all my examples of *H. simplex* the last joint of the maxillary palpi is externally sinuate toward the apex; this is not at all evident in *H. flavidus*.

53. Agrilus gibbicollis, sp. nov.

Robust, olivaceous bronze, feebly shining, sides of prothorax with whitish pubescence and efflorescence, elytra with entire pubescent vitta. Antennæ short, scarcely passing the upper margin of the eye when directed upwards, serrate from the fifth joint, seventh and following joints as wide as long. Head convex, front densely clothed with short yellowish brown hair, apparently not impressed. Prothorax nearly as long at middle as wide; sides rather broadly arcuate in front, posteriorly oblique and distinctly sinuate before the hind angles, which are a little prominent and slightly acute; disk strongly convex in front, gibbous when viewed in profile; surface punctate and concentrically strigose, more strongly so in front; hind angles moderately carinate; lateral margin sinuate when viewed from the side. Scutellum not carinate. Elytra a little sinuate at sides; the abdomen more strongly so, its sides visible from above behind the middle; tips rounded and serrulate. Prosternal lobe broadly rounded, subtruncate at middle; prosternal process nearly parallel, the visible apex truncate; sides of body beneath, and vertical portions of ventral segments with whitish pubescence and efflorescence. Pygidium without projecting carina. Claws moderately toothed at middle.

Length, 7 mm.

Described from a single female example taken by Dr. Fényes, near San Bernardino, in June. Another specimen seen in the Horn Collection was there placed with *A. blandus*. The gibbous prothorax with carinate hind angles, and non-carinate scutellum, easily distinguish *A. gibbicollis* from *A. blandus*, to which it bears only a superficial resemblance. By Horn's table, it would fall with *A. abductus* and *A. palmacollis*, in both of which the scutellum is carinate and the thorax normally convex.

54. Agrilus illectus, sp. nov.

Moderately elongate, subcylindrical, cupreo-aeneous, dull above, more shining beneath; pubescence sparse and inconspicuous, a little closer in a faint subsutural vitta, and more markedly along the sides of the sterna and vertical portions of the ventral segments. Antennæ piceous, attaining the middle of the prothorax, serrate from the fifth joint, the outer joints as wide as or a little wider than long. Head broadly, strongly longitudinally impressed, punctate and strigose. Prothorax a little wider than long, sides feebly arcuate when viewed from above, sinuate when viewed laterally; hind angles right, distinctly carinate; surface quite strongly strigose except along the side margins; dorsal channel distinct but not strong, lateral impressions well marked. Scutellum indistinctly carinate. Elytra moderately sinuate; tips rounded, feebly or scarcely serrulate; disk without trace of costæ; surface imbricate. Prosternal lobe truncate in front, a faint sinus at the middle; intercoxal process broad, truncate at tip. Abdomen rather sparsely punctate, reticulate at sides. Pygidium with a fine carina which does not nearly reach the tip. Claws with a broad tooth.

Length, 5–7.5 mm.

Described from one male and three females taken at Pomona and Pasadena by sweeping late in June.

The sexual differences are feeble, consisting of a slight flattening of the first two ventral segments, and the longer, denser pubescence along the median line of the sterna in the male. *A. illectus* would fall near *A. impexus* by Horn's table, but it is not closely related to any species.

but not the suture, and frequently join the basal spots. In one example the elytra are entirely dark except the middle of the lateral margin. Legs black except the front trochanters and the tips of the front coxæ. Abdomen black, at times rufous at the middle toward the base.

Length, 4.3-5 mm.

Many specimens have been seen from various localities in the State from San Diego to Sonoma County.

The coloration of the legs and antennæ is very constant in the series studied, and will probably prove a reliable means of separating the species from *C. 4-maculatus*, and others which are similarly colored above. The prothorax is here wider than in *C. 4-maculatus*, but less transverse than in *C. laticollis*, which has moreover a different style of elytral punctuation, and front legs and abdomen entirely pale.

C. argutus is one of a small number of species having the first antennal joint in the male elongate and distinctly excavate or sinuate on its inner face, as seen from above; and furthermore the claw-like appendage of the second joint in the male is here much longer than usual.

56. **Malachius inornatus**, sp. nov.

Rather robust, dark blue-green throughout; thorax somewhat shining, elytra dull; clothed sparsely with very short, recumbent pale pubescence. Head very finely punctulate, moderately shining, a longitudinal impression within the antennæ, and a more or less evident transverse impression, which is at times reduced to a shallow median fovea. Antennæ of the male moderately strongly serrate, reaching the middle of the elytra; those of the female feebly serrate and a little shorter. Prothorax transversely oval, broadly transversely impressed at base, finely, sparsely punctate, feebly alutaceous. Elytra subparallel (male), wider posteriorly (female), finely scabrous and punctulate, tip appendiculate in the male, broadly rounded in the female. Under surface and legs slightly darker in tint; last ventral of male deeply incised.

Length, 4-5 mm.

Four examples from Pomona.

The form of the elytral appendix is not easy to describe. The sutural angle is impressed and extended on a lower plane into an acute process; inferiorly the elytron is produced in the form of a broad, somewhat contorted plate which is deeply sinuate externally near the apex, the outer angle of the sinuation acute; parallel to and above the inner margin of the plate is an irregular process which is attached at base, rounded at tip, its upper margin bidentate near the base. The entire appendix is black without lustre, and is sparsely punctate and pubescent. The epistoma is more or less pale.

M. inornatus is nearest *M. auritus* and *M. thevenetii*, but in the former the thorax is red at sides, and it and the base of the elytra bear numerous fine, erect hairs in addition to the usual recumbent pubescence; while in *M. thevenetii* the male antennæ are pectinate, and in both the elytra are tipped with red in the female.

57. **Malachius pristinus**, sp. nov.

Very small, slender, parallel, dull black, not shining, finely punctate; head very finely, thorax more distinctly alutaceous; pubescence short, pale, semierect, inclined forward on the prothorax, and outward on the elytra; mouth, under side of three or four basal joints of antennæ, and sutural angles of elytra, yellow; legs a little paler than the upper surface, knees of front and middle pair yellowish. Antennæ scarcely reaching the

58. **Malachius acutipennis**, sp. nov.

Moderately slender; front margin of labrum and epistoma, and under side of two basal joints of antennæ, yellow; head black, prothorax entirely reddish yellow, or with a small median black spot extending frcm base to middle; elytra black with reddish bronze lustre, sutural angles reddish yellow. Antennæ strongly serrate and reaching the middle of the elytra in the male, a little shorter and much less strongly serrate in the female. Head and prothorax polished, impunctate; prothorax transversely oval. Elytra nearly parallel, feebly scabrous and punctulate, appendiculate, the sutural angle spiniform in the male; wider behind, the sutural angle broadly rounded in the female. Legs and lower surface, except prothorax, black, without well defined metallic lustre; hind tibiæ pale in the male.

Length, 4–5 mm.

Specimens taken at Pomona.

The form of the elytra and the appendix in the male is not very different from that in *M. spinipennis*, to which this species is evidently related; the color of the elytra, however, is bluish in *M. spinipennis*, the prothorax is broadly black at middle from base to apex, and the male antennæ are pectinate.

59. **Malachius directus**, sp. nov.

Not very slender; greenish black; prothorax with sides broadly yellow; apex of first, and entire second joint of antennæ, yellow on the under side. Head and prothorax polished, subimpunctate; elytra scabrous, less shining. Antennæ in the male reaching or slightly passing the middle of the elytra, rather strongly pectinate from the fifth joint; the third joint triangular, as wide as long; fourth with a shorter branch than those of the following joints. In the female the antennæ scarcely pass the humeri, and are moderately serrate, the widest joints a little longer than wide. Prothorax transversely oval. Elytra appendiculate in the male, the appendix consisting merely of a single, somewhat crumpled plate, which is but slightly inferior; the tip strongly rounded and more or less reflexed.

Length, 3.5 mm.

Found in the Sierras of Los Angeles and San Bernardino counties.

In the specimens which are to be regarded as types, the elytra are not tipped with yellow; other specimens which are, however, quite surely the same thing, have the tips very narrowly yellow. These latter resemble *M. mixtus* quite closely, but this latter species has the elytra non-appendiculate in the male.

60. **Malachius nigrinus**, sp. nov.

Slender, shining, black, without evident metallic lustre, the mouth, labrum, and epistoma, under side of the first three antennal joints, and a very narrow margin at the hind angles of the prothorax, yellow. Surface very finely, sparsely punctulate, with short sparse pale pubescence, and a few longer, erect dark hairs. Antennæ slightly passing the middle of the elytra and moderately pectinate in the male; scarcely reaching the middle of the elytra, and rather strongly serrate in the female. Head with a small median and the usual lateral impressions. Prothorax transverse; when viewed from above, the apex is nearly truncate, the sides nearly straight and parallel for a short distance, then broadly rounding into the base, which is rather strongly arcuate. Elytra parallel or nearly so in both sexes, the apices not appendiculate in the male, but separately rounded and not evidently produced in either sex.

Length, 3–3.2 mm.

Taken in the Sierras near San Bernardino and at Lake Tahoe.

There is no variation in the eight examples seen. The small size, narrow form, and almost entirely black color may be relied upon to distinguish this species from all others having the antennæ of the male pectinate, and the elytra non-appendiculate. The length of the female feebly serrate, not reaching the middle of the elytra. Head with the usual frontal impressions, surface polished, finely, sparsely punctulate. Prothorax slightly longer than wide, widest in front of the middle, sides sinuate before the hind angles, apex a little wider than the base, all the angles rounded; surface polished and sparsely punctulate; pubescence fine, semirecumbent, intermixed with longer, erect hairs. Elytra parallel (male), or a little wider behind (female); a little less shining than the prothorax, but with similar pubescence; punctuation sparse and fine; tips obliquely, separately prolonged in the male, broadly rounded in the female, narrowly yellow in both sexes.

Length, 3.3–3.6 mm.

Described from three males and one female from Pasadena, kindly given the writer by Dr. Fényes, who took them with others by beating.

The form of the prothorax, and the extravagantly long antennæ with branches half as long as the elytral width, render this the most remarkable species of the genus yet discovered in our territory.

Following is Horn's table enlarged to include the new species here described. This table is perhaps not the best that could be devised, but as a thorough revision of the Malachiini is much needed, it has not been thought advisable to attempt a thorough investigation of the genus at this time. It is quite certain that there are other undescribed species of *Malachius* in collections.

Table of Species of Malachius.

Antennæ of male serrate.

Elytra not appendiculate in the male.

Antennæ with the second joint similar in length and form to the third; size large (Atlantic Region)................*M. æneus*.

Antennæ with second joint much smaller than the third; greenish black, with small yellow spot at sutural angle in both sexes; size small (California)........................*M. biguttulus*.

Elytra appendiculate in the male.

Tips of elytra not spiniform in the male, the appendix visible from above.

Thorax with the sides broadly reddish yellow; both it and the elytra, especially toward the base, with numerous erect hairs; elytral tips reddish in the female only...*M. auritus*.

Thorax entirely dark; erect hairs nearly or quite wanting.
  Entirely dark blue-green; antennæ strongly serrate; size large (4–4.75 mm.)................... *M. inornatus.*
  Dull black, sutural tips yellow, antennæ feebly serrate; size small (2.5 mm.)................... *M. pristinus.*
Tips of elytra spiniform in the male, the appendix not visible from above................................ *M. acutipennis.*
Antennæ pectinate in the male.
  Elytra appendiculate in the male.
    Appendices not visible from above............... *M. spinipennis.*
    Appendices visible from above.
      Elytra of male either entirely yellow or tipped with pale rufous; appendix slender; hind tibiæ yellowish testaceous.................................. *M. mirandus.*
      Elytra of male entirely blue, appendix long but not very slender; legs blue-black................... *M. thevenetii.*
      Smaller, surface lustre greenish; appendix broad, rounded at tip .... *M. directus.*
  Elytra not appendiculate in the male.
    Prothorax wider than long, antennæ (male) shorter than the body.
      Elytra bluish with broad oblique pale vitta from humerus to sutural angle .... *M. macer.*
      Elytra bluish tipped with yellow in both sexes.... *M. mixtus.*
      Elytra entirely black, sides of thorax broadly reddish yellow; form rather stout............................ *M. ulkei.*
      Elytra black with slight greenish lustre, tipped with yellow in both sexes; thorax with sides very narrowly pale; form slender........................... *M. montanus.*
      Almost entirely black without metallic lustre; form slender. *M. nigrinus.*
    Prothorax longer than wide, antennæ (male) fully as long as the

than wide, sides moderately, arcuately divergent and rounding into the base; basal angles not evident, apical angles very obtuse, rounded; punctuation moderately strong, closer than on the head, a little coarser but not denser at the sides. Elytra more coarsely punctate. Legs entirely pale. Length, 2.3–2.5 mm.

Described from a small series taken at Pasadena, in April, by Dr. Fényes.

In the male the tibiæ are armed as usual, the fifth ventral segment is truncate and just perceptibly sinuate at tip, the elytra rounded as usual at the apex. In the female the fifth ventral is evenly rounded at the tip, and the elytra are separately, acuminately produced at the apex. The prothorax is longer than wide,—a character entirely unique among our species,—and the peculiar elytral sexual characters mark this as the most interesting species of the genus yet discovered. It should stand at the end of the genus.

The species of the genus are rather closely allied and difficult to determine with the existing literature. It seems not to have been noticed, or at least recorded, that the males of all species have the tibiæ on all the feet mucronate at tip. The mucros of the front and hind tibiæ are long and acute, though moderately stout, while that of the middle tibia is short and blunt. I have not been able to detect any such armature in the females. The males are often more slender than the females, and in some species, at least, the antennæ in this sex are distinctly longer.

63. Dasytes musculus, sp. nov.

Moderately elongate and convex, feebly shining; black throughout except the mandibles, which are more or less pale, and the tibiæ and tarsi, which are inclined to become picescent. Pubescence coarse, cinereous, rather dense, short, closely recumbent, uniformly distributed. Head rather finely, not closely punctate; frontal impressions nearly obsolete, eyes not very prominent. Antennæ scarcely reaching the hind margin of the prothorax, feebly incrassate, joints four to ten as wide as or (the outer ones) a little wider than long. Prothorax nearly as wide as the elytra across the humeri; sides rather strongly rounded behind the middle, convergent and feebly arcuate anteriorly, rounded posteriorly into the base, the basal angles scarcely defined; margin serrulate and with close set, even fringe of recurved hairs; disk moderately strongly, not closely, punctate, the lateral rugose area not limited by a distinctly impressed line, but well defined by the break in the vestiture. Elytra fully one-half longer than wide, distinctly wider posteriorly, apex obtusely rounded; disk finely and not closely punctate. Beneath with fine, sparser, appressed pubescence; the anterior portion of the body more evidently punctate, the abdomen very finely so.

Length, 2.2-2.6 mm.

Described from eight examples taken at Pomona, Pasadena and Riverside.

D. musculus agrees with *D. lineellus* in the coarse, closely appressed vestiture without trace of erect hairs, but differs in its smaller size, less robust form, and uniform disposition of the pubescence.

64. Dasytes clementæ, sp. nov.

Moderately elongate and convex, polished, black with strong greenish aeneous lustre, legs entirely rufotestaceous; palpi and antennæ blackish, the latter with the first three or four joints pale, the basal joint sometimes more or less obscure. Pubescence entirely luteo-cinereous, rather long, suberect, consisting, especially on the elytra, of somewhat uniformly mixed, shorter, more inclined and recurved, and longer, a little less inclined, hairs. Head narrower than the prothorax, sparsely, moderately

Described from specimens collected on San Clemente Island.

D. clementæ is a near ally of *D. dissimilis*, but is quite distinct from the latter species because of its stouter form, more strongly aeneous lustre, longer, less uniform pubescence, and entirely pale legs.

65. Dasytastes insularis, sp. nov.

Black, elytra slightly bronzed; head, prothorax, legs, and antennæ, except the three outer joints, rufous. Pubescence much inclined and without trace of erect hairs; punctuation rather fine and sparse throughout, a little coarser toward the base of the elytra than elsewhere. Head a little convex, front scarcely impressed, eyes moderately prominent. Antennæ subequal in length to the head and prothorax, joints four to ten as broad as long, the outer submoniliform; eighth a trifle smaller than the seventh and more evidently smaller than the ninth; eleventh as long as the two preceding combined. The eighth joint is usually quite pale like all that precede, but is sometimes a little obscure. Prothorax unusually convex, about one-third wider than long, widest near the middle, base and apex subequal; sides rather strongly rounded, and distinctly sinuate before the hind angles, which are obtuse but defined; margin serrulate and with an even fringe of recurved hairs; pubescence dark. Elytra about two-thirds longer than wide, widest behind the middle, strongly transversely impressed from side to side behind the base, the sides sinuate behind the humeri; apex obtusely rounded; pubescence luteo-cinereous in the transverse impression and at the apex, but otherwise dark. Beneath finely punctate and sparsely pubescent.

Length, 1.8–2 mm.

Specimens taken on Santa Catalina Island.

D. insularis is a very singular species, which however must be placed in *Dasytastes* because of its feeble, ungual appendages and the lack of lateral rugose area on the pronotum. It is without much doubt confined to the island. It should follow *D. bicolor* in Casey's table.

66. Elasmocerus californicus, sp. nov.

This Californian species, which passes as *terminatus* in some collections, and as "n. sp." in others, seems surely distinct from the eastern species, and the above name is therefore proposed for it.

The chief differences noted are as follows:—

Elasmocerus terminatus.	*Elasmocerus californicus.*
Antennæ 10-jointed, the last joint in the female fully as long as the preceding joints combined.	Antennæ 8-jointed (male), 9-jointed (female); the last joint in the female scarcely as long as the preceding joints combined.
Punctuation, especially of the elytra, closer and much coarser.	Punctuation comparatively fine.
Prothorax yellow, with a larger or smaller discal spot.	Prothorax black.
Elytra with lateral margin pale in front, the transverse median pale spot feeble, or with only a slight inward prolongation of the yellow margin.	Elytra with a transverse median pale spot which usually reaches nearly to the suture, but is rarely marginal; the margin of the elytra not pale in front of the spot.
Abdomen entirely yellow in the male, the sixth segment black in the female.	Abdomen more or less yellow along the middle, the sides black in both sexes.
Legs black.	Legs bicolored.

In the male the three or four antennal joints following the second are so short and closely connate that they are difficult to count. In the single male of *E. californicus* here described the number of joints is surely eight, but other examples will, perhaps, show the number to be nine, as in the female. Specimens from both

67. Hemiptychus integer, sp. nov.

Dark brown, moderately elongate, oval, a little more suddenly rounded in front; sides of prothorax more convergent and less curved than usual. Surface moderately shining, finely pubescent, the pubescence not concealing the surface sculpture, which is fine, the coarser punctures present as usual, but inconspicuous. Sides of elytra with two complete marginal striæ, and a third within these two, extending from the humerus to the middle. Superior outline when viewed in profile not at all gibbous, but equally curved before and behind. Ventral sutures arcuate anteriorly at the middle.

Length, 2.3-2.8 mm.

Collected at Lake Tahoe.

The entire lateral striæ, with the inner accessory one, are peculiar to this species.

68. Hemiptychus luteotectus, sp. nov.

Elongate-elliptical, rufocastaneous, densely clothed with short, recumbent luteous hair, which nearly conceals the surface sculpture; this however, when visible, is seen to be very fine, with the coarser punctures sparse and finer than usual. The lateral striæ of the elytra are two as usual, and extend from the apex to a little in advance of the middle. In well preserved specimens the vestiture is denser, in narrow lines on the disk of the elytra, giving a feebly vittate appearance. The form as seen from above is equally rounded at the extremities; when viewed in profile it is a little more strongly arched in front. The length is four-fifths greater than the width.

Length, 2.9-4 mm.

Taken at Riverside, Palm Springs and Yuma.

69. Hemiptychus palliatus, sp. nov.

Similar to the preceding, but distinctly smaller and stouter, being barely one-half longer than wide, and more densely clothed with yellowish white recumbent hair, which completely conceals the surface. The form when viewed in profile is more strongly convex, with the declivity much longer and more gradual posteriorly than in front.

Length, 1.9-2 mm.

Collected at Yuma.

70. **Polycaon megalops**, sp. nov.

Allied to *P. confertus*, with which alone it can be compared because of its ten-jointed antennæ. It differs most conspicuously in the very large and prominent eyes, which are separated by three times their own diameter when viewed from the front, while in *P. confertus* they are distant fully six times their own diameter. Further differences are as follows: prothorax distinctly wider than long, not canaliculate, the transverse impression less distinct, the granulation less dense; elytra two and one-half times as long as the head and prothorax (scarcely more than twice as long in *P. confertus*), rather sparsely punctate, much as in the male of *P. confertus*, but not at all granulate towards the sides and apex; second and third tarsal joints with only a group of projecting hairs, instead of the densely matted brushes which in *P. confertus* assume the appearance of membranous lobes.

Two examples have been seen, both apparently females; one, in the writer's collection, is 5 mm. in length, the other, in the collection of Dr. Van Dyke, is 7 mm. long. The larger specimen barely reaches the stature of the smallest *P. confertus*, which varies in length from 7.5 to 10.5 mm.

Specimens taken at Pomona, Los Angeles County.

71. **Aphodius ungulatus**, sp. nov.

Oblong, scarcely broader posteriorly, antennæ testaceous, club not darker; head piceous, margin paler; sides fimbriate posteriorly; surface not distinctly tuberculate, punctures moderate, a little finer and sparser at the middle; clypeus emarginate and distinctly though not sharply distinctly carinate. Anterior tibiæ smooth in front, externally tridentate, above crenate, first tarsal joint shorter than the second; first joint of hind tarsi as long as the next two.

Length, 5–5.75 mm.

Occurs at Pomona and Pasadena, though rarely, during December and January.

The claws are very slender and distinctly longer than in any other species observed. There are slight differences in the length and stoutness of the spurs of the front tibiæ in the five examples from which the description is drawn, but it is not certain that these differences are sexual in nature. *A. ungulatus* must be placed next to *A. serval*, from which it may be easily distinguished by the unspotted elytra, shorter first joint of hind tarsi, and longer claws.

72. Amphicoma cooperi *Horn.*

This cannot be placed as a synonym of *A. ursina*, as is announced by Horn in his review of the species of this genus.* *A. ursina* differs from all our remaining species of the genus in the eyes, which are more widely separated on the vertex than the width of the front between the antennæ, and in the hind tibiæ, which have but a single spur, characters which are quite independent of sex, and which appear to have escaped previous observation. *A. cooperi* is in accord with the other species in these particulars, and if it is to be placed with either of the described species it must be with *A. canina*. It seems best for the present, or until a careful study can be made with ample material, to hold the species as distinct, separating it from *A. canina* by its smaller size and non-maculate elytra.

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* Trans. Am. Ent. Soc., Vol. X, 1882, p. 119.

73. **Idœmea californica**, sp. nov.

Slender, cylindrical, brownish testaceous, pubescent; thighs a little paler at base. Head wider than the thorax, eyes broadly contiguous on the vertex. Antennæ slightly longer than the body in the female, nearly twice as long as the body in the male, clothed externally with rather dense, very short, erect hairs, which become sparser and longer toward the base. Prothorax cylindrical, a little dilated at the middle; surface finely, closely, but somewhat unevenly punctate. Elytra about three-fourths wider than the prothorax, gradually feebly narrowed behind, closely and a little more coarsely punctate than the thorax.

Length, 13–16 mm.

Beaten from live-oak, and taken at electric light at Pomona and Pasadena, during April and June. There is a specimen from Yuba County in the Horn Collection.

I. californica is very similar to *I. fulleri* in a general way, but the latter is somewhat stouter and more coarsely punctured, the eyes are well separated on the vertex, and the antennæ in the male are described as being but little longer than the body.

74. **Eusattus difficilis** *Lec.*

This species was based upon a series, part of which was taken at San Diego and part at Vallecito. An examination of the Le Conte material shows that two species were confused under this name. The San Diego specimens, which may be considered the true *E. diffic-*

E. difficilis, so far as the observation of the writer goes, is confined to the coast region about San Diego. It is obvious from the above that the name *convexus* must be restored.

75. **Notoxus caudatus**, sp. nov.

Moderately elongate, piceous brown, legs somewhat paler, the thoracic horn rufous; the elytra are best described as brownish black, each with two testaceous spots, one transversely oval about two-fifths from the apex, the other antemedian, larger, subtriangular, extending forward laterally to the humeral umbone; or the elytra may be described as testaceous, with a triangular scutellar area, a median band, and the apex broadly dark; these dark areas confluent both along the suture and side margin; the apex of the elytra is in some specimens narrowly, indefinitely, and indistinctly paler. Pubescence cinereous, fuscous in great part on the darker portion of the elytra, intermixed with sparse, longer, semierect hairs. Head nearly flat, rather closely but not deeply punctate; eyes about twice as long as the tempora. Prothorax transversely globose, the horn broad, dilated, the margin crenulate at sides except in front, crest rather strongly elevated, distinctly margined, the margin feebly or scarcely crenulate; surface of prothorax sparsely, finely punctate at middle, more closely at sides. Elytra widest just behind the middle, the apex rather suddenly obtusely rounded and nearly similar in the sexes. In the males there is a small, rounded, impressed area immediately before the middle of the apex of each elytron; this area is clothed with short, dense, closely recumbent cinereous hair; in the same sex the pygidium is strongly produced to an acute point, the sides of the process are sinuate before the apex; and the fifth ventral is broadly, arcuately emarginate, the limiting angles of the emargination being sharply defined and a little reflexed. In the female the elytra and tip of abdomen are unmodified.

Length, 3.1–3.5 mm.

Described from a series of eight specimens collected at Santa Fé, New Mexico, by Dr. A. Fényes.

N. caudatus is perhaps most like *N. nuperus* in general facies, but the extraordinary sexual characters of the male are nowhere approached in our species. There is considerable variation in the extent of the pale spots of the elytra, more especially the anterior ones, which are in some specimens almost lacking.

76. Xylophilus brunnescens, sp. nov.

Elongate-oblong, moderately convex, rufotestaceous, the elytra becoming darker posteriorly, head and under surface brownish, legs and antennæ paler; integuments shining; pubescence pale brown, moderate in length, not dense. Head much wider than the prothorax, sparsely, finely punctate; front concave between the eyes, declivous anteriorly, the epistomal suture fine and feeble. Eyes moderately large, separated on the front by about three-fourths their own width, the inner margin faintly emarginate; tempora parallel and about one-third the length of the eyes. Antennæ fully two-thirds the length of the body, scarcely thicker apically; first and third joints subequal, second joint half as long, joints four to ten subequal, a little shorter than the third, last joint a little longer and wider than the tenth, pointed. Prothorax subquadrate, sides parallel and impressed at the middle and again at the front angles, disk with a transverse, subbasal impression; surface more closely and a little less finely punctate than the head. Elytra nearly twice as wide as the prothorax, punctuation coarse, the punctures separated by rather less than their own diameters toward the base, but somewhat finer and less close apically. Beneath shining, the sides of the metasternum with sparse, coarse punctures, the abdomen finely, very remotely punctate. First abdominal suture nearly obliterated but traceable at sides. The first and second segments are subequal, the third a little shorter, fourth equal to the second, fifth one-half longer than the fourth, the apex evenly rounded, the disk unmodified. Front and middle thighs slender, the posterior stout and densely pilose beneath; first joint of hind tarsi about three times as long as the remaining joints united, and about three-fourths as long as the tibia. Front tibiæ with a short, slender spur at the inner apical angle.

Length, 2.3 mm.

Described from a single male taken in the San Ber-

77. **Xylophilus nucleus**, sp. nov.

Elongate-oval, subdepressed, brown, prothorax red-brown, legs and antennæ testaceous; surface moderately shining, pubescence fine, sparse, and recumbent. Head finely, closely punctate, front convex, epistomal suture obsolete; eyes large, not evidently pilose or emarginate, extending to the base of the head, distant on the front by a little more than their own width. Antennæ about half the length of the body, not distinctly thickened externally; second joint but little shorter than the first or third, these subequal, the following joints very slightly decreasing in length to the eleventh, which is subequal to the two preceding united. Prothorax small, much narrower than the head, transverse, scarcely narrowed in front, disk deeply, transversely impressed posteriorly; surface closely, rather finely punctate. Elytra elongate-oval, twice as wide at middle as the prothorax, disk obliquely impressed each side near the base, surface finely punctate, the punctures separated by from two to three times their own diameters. Beneath sparsely, finely punctate; middle coxæ separated by their own width; ventral segments decreasing slightly in length toward the apex, the last segment a little longer; suture between the first two segments completely obliterated at the middle third, but very distinct laterally. All the legs very slender, the hind femora unmodified; basal joints of hind tibiæ equal to the remainder.

Length, 1-1.4 mm.

Two examples taken in the San Bernardino Mountains.

78. **Xylophilus constrictus**, sp. nov.

Oblong-oval, subdepressed, piceous or piceo-testaceous, antennæ and legs paler. Head and thorax finely punctate; elytra more strongly and closely so. Head wide, front slightly convex, epistomal suture distinct; eyes not obviously emarginate or pilose, separated on the front by rather more than twice their own width; tempora scarcely evident. Antennæ rather slender, reaching the middle of the elytra; first joint short; second smaller, subglobose, one-half as long as the third; joints three to ten gradually decreasing in length, the eleventh as long as the third. Prothorax narrower than the head, transverse, deeply constricted behind the apex, and again, but less strongly so, along the basal margin, the constrictions in both cases extending entirely across the disk. Elytra oblong-oval, sides broadly arcuate and subparallel, twice as wide at middle as the prothorax. Middle coxæ narrowly but distinctly separated, ventral segments slightly decreasing in length, the last a little longer than the preceding; the suture between the first two segments distinct throughout. Legs very slender; basal joint of hind tarsus slightly shorter than the remainder.

Length, 1.5 mm.

Specimens from the Sierra Madre Mountains (Los Angeles County) and Lake Tahoe.

Described from two examples, in which no sexual characters were observed. The peculiar structure of the prothorax will at once distinguish the present species from any previously described. Neither *nucleus* nor *constrictus* can properly be referred to any of the numerous genera lately proposed by Casey, and for a variety of reasons it seems best for the present to use the old name *Xylophilus*.

79. Rhynchites æratoides, sp. nov.

This species is almost the exact counterpart of *R. æratus*, from which it seems constantly to differ in the more closely punctate head, broader front, more prominent eyes, and the presence in the male of a longitudinal median impressed line on the first three ventral segments.

R. æratus is somewhat variable in the cephalic characters mentioned, and while the writer has seen no specimens that approach the Californian form very closely in this respect, there would be some hesitancy in separating them were it not for the peculiar abdominal characters of the males above mentioned, the detection of which is due to the observation of Mr. Frederick Blanchard, to whom examples were sent for comparison with the eastern specimens in his cabinet.

angulate; disk with moderate basal depression, obtusely carinate anteriorly; punctuation rather strong, sparse, and unevenly distributed. Elytra a little more than twice as long as wide, about one-third wider than the prothorax; humeri obliquely rounded; apices divergent but not produced; the series of rather fine punctures unimpressed except the sutural; third and sixth intervals moderately elevated at base. Beneath speckled with subdenuded punctures. Legs moderate, lobes of third joint of hind tarsi completely spongy pubescent beneath.

Length, 13 mm.

A single specimen was taken on *Astragalus crotalaræ*, at Redondo, in April.

According to Casey's table the species should come between *C. inornatus* and *C. canescens*.

81. Cleonus erysimi, sp. nov.

Elongate, subparallel, densely clothed with rather fine whitish recumbent squamiform hairs which nearly conceal the sculpture; the disk of the pronotum, except two anteriorly convergent dorsal vittæ, and the sutural and eighth elytral intervals, glabrous. Beak nearly three-fourths as long as the prothorax, scarcely broader at tip, densely, finely punctate with coarser punctures intermixed, more or less distinctly carinate, frontal impressions well marked. Prothorax slightly longer than wide, sides straight and nearly parallel almost to apex, where they are feebly narrowed and slightly constricted; basal lobe moderately prominent, rounded or truncate at apex; basal excavation not deep; disk obtusely prominent anteriorly along the median line, but not distinctly carinate; coarser punctures sparse at middle, more numerous at sides. Elytra but little wider than the prothorax, apices divergent but not produced, punctures of striæ not coarse, the striæ not impressed; third and sixth intervals feebly elevated at base. Lower surface and legs about as usual.

Length, 7.5–11.5 mm.

Many specimens have been seen, occurring only on the flowers of *Erysimum asperum*, on the sand-hills overlooking the ocean at Redondo; March and April.

The sutural interval is pubescent at base and throughout its outer fourth, and the eighth is thinly clothed posteriorly. The ocular lobes are nearly wanting. The third joint of hind tarsi is completely spongy pubescent beneath. *C. erysimi* would be associated with *C. quadrilineatus* Chev., but this is said to have the thorax distinctly carinate and (according to Le Conte's description) the third joint of the hind tarsi is not broader than the second and not spongy beneath.

82. Anthonomus apertus, sp. nov.

Short, stout, black, moderately shining, without aeneous lustre, clothed sparsely with white pubescence, which is more conspicuous beneath. Beak somewhat variable, rather long, shining and more or less punctate at the apex, dull and more or less longitudinally strigose and sulcate behind the insertion of the antennæ; frontal fovea distinct, punctiform. Antennæ testaceous, club piceous; funicle seven-jointed, slender, its second joint slightly longer than the third, outer joints scarcely as wide as long. Prothorax about twice as wide as long, sides moderately rounded, more strongly in front, apex feebly constricted, punctuation strong and rather close. Elytra short, abruptly more than one-third wider than the prothorax, sides parallel to beyond the middle; striæ moderate, punctures rather fine, not very closely placed; intervals wide, feebly convex, slightly transversely rugose; scutellum densely clothed with white pubescence. Femora all armed with a distinct spiniform tooth; front and middle tibiæ slightly curved inward at tip; tarsi piceo-testaceous, the first joint of anterior pair about one-half longer than the second; claws armed with a moderately long tooth.

Length, 1.75-2.25 mm.

Several examples were taken at Riverside and Los Angeles.

A. apertus belongs to the *scutellatus* group, and is and fourth) elytral interspace, and still more faintly on the fifth interspace behind the middle. Beak a little longer than the head and prothorax in the male, still longer in the female, finely carinate behind the insertion of the antennæ. Antennæ slender, inserted beyond the middle in both sexes; funicle seven-jointed, second joint of funicle two-thirds as long as the first and equal to the third and fourth together. Prothorax slightly wider than long, narrowed from base to apex, sides nearly straight in basal half, thence more rounded and feebly constricted before the apex; surface densely punctured, the sculpture, however, entirely concealed by the vestiture. Elytra distinctly wider at base than the prothorax, humeri rounded, sides parallel to the middle, striæ apparently finely impressed. Legs moderate, front and middle femora armed with a very small, acute tooth; the hind tibiæ in the male straight externally, dilated internally at the apex, the dilated portion with parallel sides. Claws with a long, slender tooth which is in contact with its fellow at the tip.

Length, 2.75–3 mm.

The species is described from two males and one female beaten from sunflowers, April 20, at Pomona.

It belongs to the subgenus *Cnemocyllus*, and should be placed before *A. subvittatus*, at the head of the group.

84. **Anthonomus tahoënsis**, sp. nov.

Elongate-oval, black, legs and beak sometimes entirely or in part reddish brown; antennæ rufous, club darker; clothed rather sparsely above and beneath with uniformly cinereous scales; the scales vary a little in form, being somewhat broader on the parapleuræ, but they are as a rule subparallel and about twice as long as wide, not in the least overlapping and scarcely in mutual contact, so that the color of the derm is not concealed. Head finely sulcate between the eyes, the latter moderately convex, their hind margins slightly free; beak rather long, evenly arcuate, rather densely but not very coarsely punctate in the male, smoother in the female. Antennæ not very slender, second joint of funicle a little longer than the third, the latter subequal to the fourth. Prothorax nearly as long as wide, sides broadly arcuate and quite strongly convergent, feebly constricted at apex; surface rather coarsely and closely punctate, strongly shining. Elytra abruptly fully one-third wider at base than the prothorax, sides subparallel in basal two-thirds, thence gradually narrowed, apex parabolically rounded. Striæ fine and rather finely punctate, intervals wide, nearly flat, and almost smooth. Last ventral segment scarcely longer than the preceding in either sex, not relatively longer in the male. Legs slender; front thighs not more stout, and armed with a slender, acutetooth; hind tibiæ of male a little bent at tip, the inner margin quite deeply sinuate; in the female the hind tibiæ are scarcely bent and much less deeply sinuate internally, but are visibly stouter than the others and very decidedly stouter than the corresponding ones in the male. The apical mucro is curved downward. Claws with long, slender, approximate teeth.

Length, 2.75 mm.

Described from a single pair given the writer by Dr. Fényes, who took them at Tallac (Lake Tahoe) early in July.

A. tahoënsis is most closely related structurally to *A. subvittatus*, but differs from it and all other members of the subgenus in its sparse vestiture.

85. Anthonomus stolatus, sp. nov.

Elongate-oblong, pitchy brown; legs, beak (except extreme tip) and antennæ, reddish brown; extremely densely clothed above and beneath with broad, rounded, overlapping scales; the scales become narrower on the head and along the middle of the abdomen, and are very small and especially densely matted on the scutellum; the prevailing color is pale yellow, varied with yellowish brown on the upper surface, the prothorax showing three pale vittæ, and the elytra exhibiting indistinctly the usual pale markings, viz., a post-scutellar sutural line, a line on the fourth interval behind the middle, and another on the sixth interval beginning at the base; these markings at best are faint, and some examples show scarcely a trace of them. Beak as long as the head and thorax (in the male) or somewhat longer (in the female), parallel, moderately strongly, evenly arcuate, glabrous except at base, punctate and carinate at sides, more finely punctate and scarcely carinate above. Head densely clothed with scales, apparently with an elongate puncture or short sulcus between the eyes, the latter moderately convex, their posterior margins not free

The description is drawn from seven examples, all of which are from San Diego or the vicinity.

The hind tibiæ are apparently very slightly more strongly sinuate along the inner margin in the males, but this difference is hardly enough in itself to suggest the placing of this species in the subgenus *Cnemocyllus*; the affinities in other respects are, however, obviously in that direction, and *A. stolatus* should find a place near *decipiens*, from which, and all others of the subgenus (except possibly *A. ligatus*), it differs in the almost entire lack of sexual difference in the posterior tibiæ; from *A. ligatus* it may be separated by color and also the longer ungual teeth.

86. **Epimechus arenicolor**, sp. nov.

Elongate-oblong, color of derm varying from testaceous to rufous, the thorax and abdomen usually darker and the legs and antennæ paler than the elytra; moderately densely clothed with broadly oval, pale, dull yellowish scales, which are nearly uniform in color throughout and as a rule do not overlap, but become denser or even strongly imbricate in the position of the usual paler vittæ in *Cnemocyllus*. Head clothed with sparser, more elongate scales; eyes feebly convex, hind margin not free; front narrow, the eyes separated by a distance distinctly less than their own width as seen from the front; beak moderately long and evenly arcuate, punctate in longitudinal series, not distinctly carinate above at base; antennal funicle, slender, second joint one-half longer than the third. Prothorax evidently transverse, sides subparallel at base, gradually arcuately narrowed in front, apex very slightly constricted; surface deeply, rather densely punctate. Elytra slightly wider at base than the prothorax, sides parallel to apical third, apex rather narrowly parabolically rounded; strial punctures nearly as wide as the intervals, the latter feebly convex and slightly rugose. Last ventral segment (in the male) longer than the two preceding united. Femora rather stout, the anterior feebly toothed; hind tibiæ (in the male) distinctly but not strongly curved at apex; claws simple.

Length, 2-2.5 mm.

All specimens seen are from Arizona—Phœnix (Stromberg) and Palomas.

This species must by the simple claws be placed in *Epimechus*, but in every other respect it is closely allied to the members of the subgenus *Cnemocyllus*. The ungual teeth in *Anthonomus* vary greatly in development, and it is to be doubted whether the genus *Epimechus*, which is apparently founded on this character alone, will prove tenable. A similar condition of affairs obtains in *Apion*, which it has not been thought proper to divide although there is more to warrant a separation than in the present instance.

E. arenicolor by its comparatively dense scaly vestiture must be associated with *E. nevadicus* and *E. æmulus* (see following description); it is, however, less densely clothed than either of these, and of quite a different color; in the extreme length of the last ventral of the male (females have not been seen) it differs conspicuously from all allied forms; this segment in other species of *Epimechus*, in fact, being scarcely at all longer than the fourth. The claws in *E. nevadicus*, *E. arenicolor*, and *E. æmulus* are distinctly smaller than in the non-squamose species of the genus *E. adspersus*, *E. mimicus*, etc.

87. Epimechus æmulus, sp. nov.

Elongate-oval, densely clothed with whitish and grayish brown scales, Described from one example of doubtful sex taken at or near San Diego.

It is distinguishable at once from *E. nevadicus*, its nearest ally, by its larger size and seven-jointed funicle.

88. Ceutorhynchus pervestitus, sp. nov.

Oblong-oval, densely clothed throughout with broad, overlapping scales of whitish, pale brown, and dark brown intermingled. Antennæ inserted at the middle of the beak; piceous; funicle seven-jointed. Beak moderately elongate, punctate and striate, smoother and more shining at tip, squamose at base; front concave, vertex finely carinate; eyes concealed in repose. Prothorax about one-third wider than long, sides subparallel from base to middle, then rather suddenly rounded into the deep apical constriction; apical margin elevated, notched at middle; lateral and dorsal tubercles prominent, those on either side apparently joined by a transverse elevation; dorsal channel deep. In addition to the vestiture above mentioned, there are sparsely placed blackish, erect, piliform scales, which are more noticeable at the sides and in a patch on either side of the dorsal channel at base. Elytra about one-third wider than the prothorax, sides nearly straight, a little narrowed behind; each interspace with a row of blackish, erect, linear scales like those on the prothorax; the alternate intervals on the disk, beginning with the second, tessellate with patches of these scales; the scales proceeding from the strial punctures are long, bristle-like, and closely recumbent. Femora moderate, distinctly toothed; last joint of tarsi equal to the two preceding; claws with a rather small but acute subbasal tooth.

Length 2.75 mm.

Described from a single example taken at Bakersfield.

The type is a male, having the last ventral segment vaguely concave, and the middle and hind tibiæ unguiculate. The vestiture is so dense as to entirely conceal the color and sculpture of the integuments, but they are probably much the same as in allied forms. This species must be referred to the *subpubescens* group, from all the members of which it differs greatly in appearance.

89. Baris heterodoxa, sp. nov.

Oblong-oval, moderately robust, black without distinct aeneous lustre, surface of pronotum polished between the punctures, that of the elytra shining but minutely sculptured; setæ nearly lacking on the pronotum, the elytra with scattered but somewhat numerous subsquamiform, white, recumbent hairs which are about as long as the width of the interspaces. Head finely, sparsely punctate; beak as long as the prothorax, moderately stout, strongly, evenly arcuate, closely punctate. Antennal funicle rather slender; the second funicular joint about as long as wide, following joints gradually more transverse but only slightly increasing in width, the eighth less than half as wide as the club. Prothorax distinctly transverse, sides nearly parallel and feebly arcuate from base to apical fourth, then strongly rounded and constricted at the apex; surface densely punctate except toward the middle of the disk, where the punctures are separated by nearly their own width; a distinct fusiform, impunctate median line from the apical third nearly to the base. Elytra a little wider than the prothorax and scarcely twice as long; sides very slightly convergent behind, rather broadly but subparabolically rounded at apex. Striæ shallow, with distant, moderately well defined punctures; intervals about three times as wide as the striæ, all very numerously, confusedly punctate, the punctures as a rule not more than one-fourth the width of the intervals. Abdomen shining, moderately coarsely, but not densely punctate. Prosternum densely, coarsely punctate, the intercoxal process rather less than half the coxal width.

Length, 3.7 mm.

One specimen taken in Los Angeles County.

In the vestiture and sculpture of the elytra this species is perhaps the most extraordinary in our fauna. The second and third intervals are just visibly wider than the others, but the punctuation is equally close and confused from base to apex on all. *B. heterodoxa* seems to fall between *B. vespertina* and *B. oblongula* in Casey's then strongly rounded and with a very short apical constriction; surface strongly and rather coarsely punctate, the punctures as a rule separated by less than their own diameters; they are somewhat finer and less close at the middle of the disk anteriorly, and at the extreme sides are more or less coalescent, forming longitudinal rugæ; disk without median smooth line or with but faint traces of it. Elytra a little less than twice as long as the prothorax, slightly wider, the sides feebly convergent posteriorly and broadly elliptically rounded at apex; striæ rather fine, moderately deep, obsoletely punctate; intervals flat, about two and one-half times as wide as the striæ; the second and third fully three times as wide as the striæ; second, third, and ninth with more or less confused punctuation, the other intervals with a single series which is, however, somewhat confused or irregular at base; the punctures as a rule not more than one-third as wide as the intervals, and distant from each other by about their own diameter. Beneath rather coarsely and closely punctate; prosternum nearly flat, the front coxæ separated by rather more than half the coxal width.

Length, 3.4–4 mm.

Described from a good series taken by Mr. F. S. Daggett in Bear Valley (San Bernardino Mountains), at an elevation of about 6,400 feet.

B. monticola would fall next to *B. aprica* according to Casey's table, but it is very distinctly different in its finely punctate elytral intervals, among other characters. The prothorax is scarcely more strongly declivous in front, as is described of the section in which the elytra are less than twice as long as the prothorax, and to which *B. monticola* is therefore referred. The setæ of the upper surface are very short and inconspicuous.

91. Sphenophorus tardus, sp. nov.

Moderately robust, black, feebly shining. Beak one-half the length of the prothorax, distinctly arcuate, moderately compressed; punctuation sparse and minute except at base, the usual puncture between the eyes, before the puncture a short, fine, impressed line. Prothorax longer than wide, sides evenly arcuate, a little convergent anteriorly, apex constricted; surface without grooves or elevations, densely, moderately coarsely punctate, with a narrow, median, smooth space, or line, which reaches neither base nor apex. Elytra not at all, or scarcely wider, and but little longer, than the prothorax; striæ moderately deep and rather finely punctate on the disk, more coarsely so at sides, those of the seventh and eighth striæ being wider than the striæ and thus encroaching on the intervals; intervals flat, alternating in width, the narrower ones uniseriately, the wider ones biseriately, but all more or less irregularly punctate, the punctures rather coarse and very closely placed. Under surface more shining, rather coarsely but less densely punctate than above. Femora moderately punctate.

Length, 6.5-9 mm.

Numerous specimens have been seen, taken at or near San Bernardino.

The species may stand at the end of Division A of Group V of Horn's Synopsis.

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ERRATA.

W. R. Judkey

Occasional Papers

OF THE

CALIFORNIA

ACADEMY OF SCIENCES

IX

SAN FRANCISCO
1905

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A
Handbook of the Trees of California

BY

ALICE EASTWOOD

Curator of the Department of Botany

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PREFACE.

The pressing need of a popular manual of the trees of California is the reason for this little book. The aim has been to prepare a work, which, while giving all the information necessary for the identification of the different trees of our valleys and mountains, will yet be so brief and concise that the entire matter can be put into a book that can be carried into the field. Fuller information concerning any tree, for instance, the value or character of its wood, structural details of its flowers and fruits, notes concerning variations, and accounts specifying all the points of distribution, can readily be obtained from other books, which are to be found in the public libraries throughout the state.

Years ago Dr. Albert Kellogg, one of the founders of the California Academy of Sciences, must have had a similar plan, for he left a great number of carefully executed drawings illustrating the different Californian trees and shrubs. It seems especially fitting that these illustrations should at last be used for the purpose for which they were designed, and as far as possible this has been done. Without the valuable assistance of Mr. Joseph A. Street, who not only photographed all these drawings but also made photographs of the actual specimens when there were no drawings, this book would be of much less value. I feel especially grateful to Mr. Street, as his work was a labor of love—love for his art as well as for the trees. In general these illustrations are about one-half the actual size.

The plates of the two yuccas were obtained through the kindness of Dr. C. Hart Merriam and the liberality of the United States Department of Agriculture. The scientific names have been changed according to the late revision of the Yucceæ by Dr. William Trelease, Director of the Missouri Botanical Garden. For the picture of the California fan palm representing the trees in their native environment I am indebted to Mr. T. P. Lukens of Pasadena.

It is not easy to place the boundary between trees and shrubs, especially in California where some species are either trees or shrubs. In general a tree differs from a shrub in having a distinct trunk some distance above the ground and in being not less than fifteen feet high. Where the species is only rarely a tree and generally a shrub, it has not been included, so that many species of *Ceanothus*, many of the manzanitas, the sumachs, and many others have been omitted. In general I have followed Professor Charles Sprague Sargent in his selection of the trees for his magnificent 'Silva of North America'; I have also followed him in regard to nomenclature. One or two exceptions will be found, such for instance as giving the big tree the old name of *Sequoia gigantea* instead of *Sequoia Wellingtonia*.

Three keys have been arranged to make it easy to determine the species: the first according to the leaves, [redacted] so few of them that are not represented in California (while so many of California's trees are common to those states); they will be found in foot-notes in their appropriate places. The same plan has been followed in the case of Arizona, though in this region the trees in the mountains are quite different from those of California although their number is not great. By including these the book is made available for use throughout this wide territory, and can also be used in Nevada, and to some extent in Idaho.

Throughout the work the aim has always been brevity and clearness—the desire to help rather than to shine.

INTRODUCTION.

The forests of the Pacific States are noted for their grandeur and extent. They are inhabited by a greater variety of cone-bearing trees than are found in any other equal area on the globe, and their trees are the largest, tallest, and oldest in the world. There are eighteen pines (*Pinus*), three spruces (*Picea*), two hemlocks (*Tsuga*), two Douglas spruces (*Pseudotsuga*), eight firs (*Abies*), two sequoias, one arbor-vitae (*Thuya*), one incense cedar (*Libocedrus*), seven cypresses (*Cupressus* and *Chamaecyparis*), three junipers (not including the prostrate shrub of the Sierra Nevada), and two larches (*Larix*)—the last found in Oregon and Washington, but not in California.

The oaks, maples, alders, birches, buckeye, sycamore, walnut, ash, and dogwood are different from their relatives in other parts of the world. We do not have magnolias, elms, lindens, beeches, hickories, chestnuts, persimmons, or mulberries, except where they have been introduced into our gardens. Here they do so well that their absence among the native trees evidently arises not so much from unsuitable environment as from lack of opportunity. We the winter; also many island and desert trees, which, while related to other species, are very distinct in appearance and generally remarkably striking.

Some of the California species of trees are singular in the limited area of distribution and the comparatively few individuals in their native homes. The Monterey cypress was originally confined to the shores of Monterey Bay but is now cultivated all over the world. The Santa Lucia fir is found in only a few cañons of the Santa Lucia Mountains in Monterey County. It is remarkable for its beauty and symmetry and the singular appearance of its cones, which are like diamond-studded birds' nests on the tops of the trees. The Torrey pine grows in San Diego County within limited areas and on the island of Santa Rosa. It has remarkably long and heavy leaves and large cones. The weeping spruce (*Picea Breweriana*) secretes itself in the high mountains of Trinity and Siskiyou counties in almost inaccessible regions, and is found with the same habitat in southern Oregon. It is a peculiar tree more noted for grace than for beauty, and with its drooping branches seems veiled in verdure. There are two species of *Lyonothamnus*, one on Santa Catalina Island and the other on San Clemente Island—beautiful and peculiar trees belonging to the Rose family. On Santa Catalina there is also a mountain mahogany (named in honor of its discoverer, Mrs. Blanche Trask) more lovely than any of its relatives in any other part of the world. It is found only in a few cañons so remote that until lately they had never been seen.

Some of the most important trees, however, extend throughout the mountains of the entire region—the sugar pine from British Columbia to southern California varying in altitude with the latitude, the lowest limit ascending as it travels south. It is common throughout the Sierra Nevada, but in the Coast Mountains is found only on the highest summits. The yellow pine and Douglas spruce are, however, the most widely distributed of all the trees, extending throughout the Rocky Mountains as well as through all the mountains of the Pacific States. The Douglas spruce reaches its greatest development in Oregon, where it is generally known as the red fir, but to the lumbermen as Oregon pine. Its tall straight stems are used extensively for masts of ships and for flag and telegraph poles. There are two species in California, the common, widely distributed species, and that with much larger cones peculiar to the southern mountains. The latter is found only on the mountains extending east and west; its relative is never found associated with it or even growing in the same mountains.

There are no real spruces (*Picea*) south of Trinity and Mendocino counties. *Chamæcyparis* reaches Mount Shasta, but is most abundant in southern Oregon near the coast. The firs are better represented in Oregon and Washington than in California, there being three species there which we do not have.

The oaks are quite widely distributed, but in general do not form forests, though some species, such as the

The explanation for these apparent exceptions may be that they are not yet sufficiently known.

The common large-leaved maple is distributed throughout the entire region, but the vine maple is not found in southern California, nor is the mountain maple found in California, outside the Sierra Nevada.

Remarkable facts concerning the trees and forests of the region might be extended indefinitely, but sufficient have been given to show how interesting the subject is, and perhaps to incite the users of this book to a greater love for and pride in our forests, resulting in their protection from indiscriminate destruction.

KEY TO THE TREES OF CALIFORNIA ACCORDING TO THE LEAVES.

Leaves evergreen, linear, needle-shaped, or scale-shaped; trees containing pitch or resin. **Taxaceæ,** Yew Family, p. 15; **Coniferæ,** Pine Family, p. 16, (Larch with leaves deciduous).

Leaves simple, with entire margin.

Evergreen. Yucca, p. 33; oak, pp. 45–51; chinquapin, p. 51; laurel, p. 52; cherry, p. 54; mountain mahogany, p. 58; madroño, p. 74; manzanita, p. 75; lyonothamnus, p. 59.

Deciduous. Willow, pp. 35–39; dogwood, p. 73; cherry, p. 54; desert willow, p. 78; redbud, p. 62; button-bush, p. 78.

Leaves simple, with margins wavy, serrate, dentate, or crenate.

Evergreen. Oak, pp. 45–51; wax-myrtle, p. 41; California lilac, pp. 70–72; coffee berry, p. 69; madroño, p. 74; lyonothamnus, p. 59; Christmas berry, p. 57; willow, p. 38; garrya, p. 73.

Deciduous. Alder, p. 43; birch, p. 43; cottonwood, p. 40; aspen, p. 40; willow, pp. 35–39; oak, pp. 45–51; cascara sagrada or coffee berry, p. 69; cherry, p. 54; plum, p. 55; mountain mahogany, p. 58; apple, p. 56; hawthorn, p. 56; dalea, p. 60; hackberry, p. 52.

Leaves lobed. Deciduous. Fremontia, p. 69; maple, p. 66; sycamore, p. 53; oak, pp. 45–51; hawthorn, p. 56.

Leaves compound. Deciduous. Hop-tree, p. 66; olneya, p. 61; walnut,

KEY TO THE TREES OF CALIFORNIA ACCORDING TO THE FRUITS.

Seed or seeds enclosed in a fleshy covering and generally known as a berry. California nutmeg, p. 15; yew, p. 15; juniper, p. 16; palm, p. 32; madroño, p. 74; dogwood, p. 73; wax-myrtle, p. 41; coffee berry, p. 69; elder, p. 79; garrya, p. 73; Christmas berry, p. 57; manzanita, p. 75.

Seeds in a cone. Alder, p. 43; birch, p. 43; Pine family (except the juniper), p. 16.

Seeds furnished with a tuft of cotton, in pods which are on an axis and form a catkin. Willow, p. 34; cottonwood, p. 40; aspen, p. 40.

Fruit with membranous wings or feathery tails. Maple, p. 66; box elder, p. 67; ash, pp. 76–77; hop tree, p. 66; mountain mahogany, p. 58.

Seed in a hard woody covering and known as a nut. Buckeye, p. 68; walnut, p. 42; oak, pp. 45–51; chinquapin, p. 51.

Seeds (1 or more) with a hard covering surrounded with a fleshy covering, known as a drupe or stone fruit. Cherry, p. 54; plum, p. 55; laurel, p. 52; California nutmeg, p. 15; hackberry, p. 52; hawthorn, p. 56.

Fruit a papery core surrounded by a fleshy outer coat, and known as a pome. Apple, p. 56.

Fruit a dry pod with 1 or several divisions.

Legume, like the pod of a bean or pea. Mesquite, p. 64; olneya, p. 61; parkinsonia, p. 62; redbud, p. 62; desert willow, p. 78; dalea, p. 60; acacia, p. 65.

Pod splitting into more than 2 parts. Yucca, p. 33; fremontia, p. 69; buckeye, p. 68; California lilac, pp. 70–72; button bush, p. 78; lyonothamnus, p. 59.

Fruit in balls, 2 or more of which are strung on a pendent stem. Sycamore, p. 53.

KEY TO THE FAMILIES OF THE TREES.

GYMNOSPERMS. Ovules not enclosed in an ovary.

Trees or shrubs with needle-shaped, scale-shaped, or linear, generally evergreen leaves; pistillate and staminate flowers separate, on the same or different plants, without calyx or corolla, the clusters of stamens and ovules subtended by scales which in fruit become woody and form a cone, or resinous and form a berry.

Taxaceæ, Yew Family, p. 15;
Coniferæ, Pine Family, p. 16,
(The larch has deciduous leaves.)

ANGIOSPERMS. Ovules in an ovary, with or without a calyx and corolla.

MONOCOTYLEDONS. Endogens. Flowers on plan of 3, never of 5; leaves parallel-veined; woody fiber scattered through the stems in bundles with no definite arrangement.

Floral divisions greenish, 6, in 2 dissimilar sets; ovary superior, in fruit forming a berry or stone fruit.

Palmæ, Palm Family, p. 32.

Floral divisions not green, petal-like, 6, in 1 set; ovary superior, in fruit forming a dry pod or a fleshy fruit.

Liliaceæ, Lily Family, p. 33.

DICOTYLEDONS. Exogens. Flowers generally on plan of 4 or 5; woody fiber forming concentric rings in the stem; leaves netted-veined.

With but one set of floral divisions.

Flowers in catkins.

Pistillate and staminate on separate plants; 1 flower to each scale of the catkin; fruit a many seeded pod, each seed furnished with a tuft of cotton.

Salicaceæ, Willow Family, p. 34.

Pistillate and staminate flowers on the same plant, the staminate only in catkins, these long and pendent; fruit a nut with a rather thin outer coat.

Juglandaceæ, Walnut Family, p. 42.

Pistillate and staminate flowers on different plants, the staminate with calyx 4-parted, stamens 4; pistillate with calyx 2-lobed or wanting, ovary 1-celled, 2-ovuled, styles 2; fruit a berry.

Garryaceæ, Fringe-tree Family, p. 73.

Flowers in balls on pendent stems.

Pistillate and staminate on the same plant but on separate stems, the balls separated, 2 or more to each stem like beads on a string.

Plantanaceæ, Sycamore Family, p. 53.

Flowers neither in catkins nor balls.

Stamens numerous, inserted on the calyx; leaves evergreen or deciduous.

Rosaceæ, Rose Family, Mountain mahogany, p. 58.

Stamens 9 in 3 sets; floral divisions 6, yellow.

Flowers in umbels; leaves aromatic.

Lauraceæ, Laurel Family, p. 52.

Pistillate and staminate flowers on separate plants, the former in pendent racemes, the latter in bunches on hair-like stems; stamens 4–5, inserted on the receptacle; calyx minute.

Aceraceæ, Maple Family, p. 67.
Box-elder.

Stamens 5, partially united by the filaments; floral divisions 5, large, leathery, yellow, united at base to the filaments.

Sterculiaceæ, Sterculia Family, p. 69.
Fremontia.

Stamens 2, with large anthers; calyx small, 4-cleft; fruit 1-seeded, winged at top; pistillate and staminate flowers in panicles on separate plants.

Oleaceæ, Olive Family, p. 76.
Ash.

Stamens and pistils in the same or separate flowers on the same plant, the former 4–5, the latter with 2-divided styles; fruit a drupe.

Celtidaceæ, Hackberry Family, p. 52.

Calyx and corolla present, sometimes inconspicuous.

Stamens numerous, inserted on the calyx; flowers showy; fruit fleshy, either a berry or a drupe.
Rosaceæ, Rose Family, p. 54.
Hawthorn, cherry, apple, plum, etc.

Stamens 10, anthers opening by holes at the top; corolla urn-shaped. **Ericaceæ,** Heather Family, p. 74.
Madroño.

Stamens 10, free; calyx and corolla of 5 separate or almost separate parts; fruit a legume.
Leguminoseæ, Pea Family, pp. 60–65.
Mesquite, acacia, parkinsonia, redbud, etc.

Stamens 3–10 on a disk; flowers small, in racemes or corymbs; fruit of 2 parts, each winged, united at base.
Aceraceæ, Maple Family, p. 66.

Stamens 6, elongating, with reddish anthers; flowers numerous, many with imperfect pistils, in a large compound cylindrical cluster; fruit pear-shaped, pendent on long stems.
Hippocastanaceæ, Buckeye Family, p. 68.

Stamens 4–5; fruit a berry with 2–3 seeds, or a small pod with 3 seeds in 3 cells.
Rhamnaceæ, Buckthorn Family, pp. 69–72.
Cascara sagrada, California lilac.

Stamens and pistils in the same or separate flowers; sepals, petals, and stamens distinct, 4–5; the sepals often deciduous; fruit orbicular, winged all around; leaves dotted with translucent glands.
Rutaceæ, Lemon Family, p. 65.

Stamens 4–5; flowers small, in ample compound clusters; corolla monopetalous.
Caprifoliaceæ, Honeysuckle Family, p. 79.
Elder-berry

CLASS I. GYMNOSPERMS.

TAXACEÆ. YEW FAMILY.

Leaves linear, spreading in 2 ranks. Flowers solitary in the leaf-axils, the pistillate and staminate on separate trees. Fruit a seed surrounded by a fleshy covering, resembling a small plum or olive (*Tumion*), or inserted in a scarlet fleshy cup and when young resembling a tiny acorn in shape (*Taxus*).

Tumion Californicum *Greene.* CALIFORNIA NUTMEG, TORREYA. PLATE I, FIG. 1. Leaves bright green and glossy, 1-2 inches long, tipped with a sharp needle-like point. Seed completely surrounded by the fleshy covering, the cross-section resembling a nutmeg. Often a tall large tree 3-4 feet in diameter, but more frequently bushy especially on hills. Bark smooth, grayish brown. Blooming in spring, fruiting in fall. Fruit purple or yellow-green. While never common and never forming forests, it is widely distributed in the Coast Mountains and throughout the Sierra Nevada at middle elevations. (*Torreya Californica* Torr.)

Taxus brevifolia *Nutt.* PACIFIC YEW. PLATE I, FIG. 2. Leaves similar to the preceding but much shorter and not spiny-tipped. Seed as large as a pea, inserted in a scarlet fleshy cup which almost surrounds it. Often shrubby, but becoming a tree 70 feet or more high, with flaky, reddish bark and slender drooping branches. In the Coast Mountains of central and northern California and in the Sierra Nevada at middle elevations; extends northward to British Columbia.

CONIFERÆ. PINE FAMILY.

Leaves linear, awl-shaped, scale-shaped, or needle-shaped. Pistils and stamens in separate flowers, sometimes on different plants. Fruit a berry or cone.

Tribe I. Leaves scale-shaped, opposite or in 3's, imbricated and appressed. Scales of the small cone or berry opposite, few. This tribe contains juniper (*Juniperus*), cypress (*Cupressus*), arbor-vitæ (*Thuya*), incense cedar (*Libocedrus*), Port Orford cedar (*Chamæcyparis*). In all but the first the stamens and pistils are on the same tree.

Tribe II. Leaves either flat and 2-ranked or lanceolate, rigid, and pointed. Scales of the cone shield-shaped, spirally arranged. Seeds numerous, angled. This tribe contains the two species of *Sequoia*. The pistils and stamens are on the same tree.

Tribe III. Leaves separate or in fascicles, linear or needle-shaped. Scales of the cone bract-like, spirally arranged with 2 winged seeds to each scale. Stamens and pistils on the same tree. This tribe contains fir (*Abies*), Douglas spruce (*Pseudotsuga*), hemlock (*Tsuga*), spruce (*Picea*), pine (*Pinus*).

JUNIPERUS.[1] JUNIPER, CEDAR.

PLATE II

in whorls of 3's (or loosely spreading on young shoots). Fruit a globose or short-oblong resinous berry ripening the second season. Seeds bony, 1-3. Shrubs or trees branching somewhat irregularly, often low and spreading. Bark generally shreddy. Wood aromatic.

J. Californica *Carr.* Berry reddish, dry and resinous, globose or oblong, as large as a green pea, containing 2 seeds. Low and spreading, with short trunk. The common species of the Coast Mountains, found chiefly south of San Francisco, also on the western foothills of the Sierra Nevada on dry slopes.

J. Utahensis *Lemmon.* Similar to the preceding, but with finer foliage and with berries containing 1 seed. Chiefly a species of Nevada and Utah, but found in southeastern California in the desert regions.

J. occidentalis *Hook.* Berry blue-black, smaller than the preceding, fleshy, with 2 or sometimes 3 seeds. A low straggling bush or a fine tree irregular in outline. Grows throughout the Sierra Nevada at upper elevations; extends northeastward into Oregon and Idaho.

CUPRESSUS.[1] CYPRESS.

PLATE III.

Leaves opposite, minute, scale-shaped, imbricated, and appressed. Fruit a globose or oblong woody cone with thick, woody, shield-shaped scales which fit closely together before the cones open; ripening the second season but often persisting. Seeds angled, numerous.

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[1] **Cupressus Arizonica** *Greene.* Branches with bark flaking off and leaving a smooth dark red surface. Leaves pale glaucous green, generally without glands Fruit a roundish cone, red-brown and covered with a glaucous bloom, about an inch in diameter, on a short stout stalk, shield-shaped scales elevated to a stout point about the middle. At upper elevations in the mountains of Arizona.

C. macrocarpa *Hartw.* MONTEREY CYPRESS. Foliage dense, dark green. Cones numerous, clustered on short stems, generally oblong, 1-1½ inches long. On the shores of Monterey Bay, forming picturesque trees. Now extensively cultivated for wind-breaks and hedges.

C. Goveniana *Gordon.* MOUNTAIN CYPRESS. Foliage more spreading than in the preceding, yellow-green or glaucous, terminal branchlets slender, recurving. Cones often densely clustered, globose, an inch or less in diameter. Seeds angled, brown. Widely distributed on hills of the Coast Mountains from Mendocino County near Ukiah to San Diego County. In bloom during the rainy season.

C. pygmæa *Sargent.* MENDOCINO CYPRESS. Similar to the preceding but with smaller cones full of small black seeds. On the sandy plains near Mendocino City a few inches or feet high, but becoming a tree of good dimensions in more favorable localities. Apparently local on the coast of northern Mendocino County.

C. Macnabiana *Murr.* FRAGRANT CYPRESS. Foliage slender, very fragrant, pale bluish green, sprinkled all over with white glands. Cones small, with horn-like projections on the scales. On hillsides low and pyramidal, but near stream banks a tall tree more oblong in outline. On the inner Coast Mountains of Lake, Napa, Shasta, Branches flat, drooping. Foliage green or glaucous. Cones numerous, globular, as large as green peas; ripening in one season; bluish, becoming brown when ripe. Seeds winged, about 4 under each scale. Blooms in spring.

C. Lawsoniana *Parlat.* A tall graceful pyramidal tree with fragrant wood. Staminate flowers crimson. Found in Siskiyou and Del Norte counties, but reaches its greatest development in southern Oregon. Common in cultivation. (*Cupressus Lawsoniana* Murr.)

THUYA. ARBOR-VITÆ.

PLATE IV, FIG. 2.

Leaves minute, scale-shaped, opposite, imbricated in 4 ranks but with tips free. Branches horizontally flattened. Cones small, numerous at the ends of branchlets; ripening in one season. Scales 8-10, erect, arranged in pairs having 2-3-winged seeds at the base of all but the top and bottom pairs.

T. plicata *Don.* Cones half an inch or less long, soon becoming reflexed. Tall tree of pyramidal outline, sometimes becoming more than 200 feet high. Northern California near the coast; reaches its highest development farther north. (*T. gigantea* Nutt.)

LIBOCEDRUS. INCENSE CEDAR.

PLATE V.

Foliage similar to the preceding. Cones numerous near the ends of branches, not reflexed. Scales 4-6, erect, the two middle ones thick, much larger than the others, and bearing the winged seeds at base.

L. decurrens *Torr.* Tree of pyramidal outline, with reddish bark; trunk spreading at base and resembling that of the 'big tree.' In the Coast Mountains on lofty ridges and peaks and in the Sierra Nevada associated with the pines and sequoias; extends into Oregon.

SEQUOIA. Redwood, Big Tree.

Plate VI.

Leaves linear, flat, and 2-ranked, or lanceolate, rigid, and pointed. Cones oblong with shield-shaped scales, the outer part diamond-shaped and with quilted surface, spirally arranged. Seeds numerous, angled. Immense trees with enormous trunks clothed with thick red fibrous bark. Wood red.

S. gigantea *Decaisne.* Big Tree. Cones as large as an egg, short-oblong, ripening in two seasons. Leaves appressed at base, rigid and pointed. This tree is famous for its great size and long life, many having lived more than a thousand years. In the Sierra Nevada from Amador to Tulare counties, growing with the white fir and sugar pines. (*S. Wellingtonia* Sargent.)

S. sempervirens *Endl.* Redwood. Cones as large as

ABIES.[1] Fir.

Plate VII.

Leaves solitary, spirally arranged but appearing 2-ranked from an upward twist of the base, linear, sessile. Branches smooth with circular scars where the leaves have fallen. Leaves of lower branches horizontally spreading, the upper erect and crowded. Cones erect, generally near the top of tall pyramidal trees; the scales and seeds falling from the woody persistent axes which resemble candles on a Christmas tree. The cones are never found under the trees, only the seeds and scales.

A. grandis *Lindl.* White Fir. Leaves obtuse or emarginate, an inch or so long, with 2 pale bands beneath. Cones cylindrical, 2-4 inches long. Scales broad and narrow with included bracts. Becomes a fine tree sometimes 300 feet high. From Mendocino to Del Norte counties not far from the sea, extending to British Columbia.

A.[2] concolor *Lindl.* Balsam Fir, White Fir. Leaves acute, pale green on both sides, spreading on the lower branches, 2-3 inches long; on the upper, shorter, thicker, erect, and curving. Cones oblong-cylindrical, 3-5 inches long. Scales broad and narrow with bracts inclosed. Becomes a large tree sometimes 150 feet high with gray bark, pale yellow under the outer layer. Grows throughout the Sierra Nevada in the region of the yellow and sugar pines, extending northward to Oregon; also found in the mountains of Arizona, Nevada, etc.

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[1] **Abies lasiocarpa** *Nutt.* Balsam Fir. Leaves flat, grooved on upper side, rounded or notched at top, blue-green. Cones oblong-cylindrical, 2½-4 inches long, dark purple, the bracts concealed by the cone scales. High mountains of British Columbia, Washington, and Oregon. In northern Arizona there is a species, considered distinct from this, with corky bark, which has been named by Dr. C. Hart Merriam, *Abies Arizonica.*

A. amabilis *Forbes.* White Fir. Bark silvery white and smooth. Leaves dark green and shining on the grooved upper surface, silvery white on lower; crowded; obtuse, acute, or notched at tip. Cones oblong, purple. 3½-6 inches long, the bracts concealed by the cone scales. Tall large tree in the mountains of British Columbia, Washington, and Oregon.

A. nobilis *Lindl.* (Incorrectly called Larch). Leaves flattened on the lower branches, 4-sided and grooved on the upper; rounded, acute, or notched at tip; light blue-green. Cones oblong-cylindrical, purple or brownish, the beautiful reflexed bracts concealing the scales. Mountains of Oregon and Washington at middle elevations.

[2] **A. Lowiana** Murr. (*A. concolor Lowiana* Lemmon) is considered distinct, and the name has been applied to the tree of the high Sierra Nevada. It differs from the typical form in having the foliage greener, the cones shorter, and the leaves much shorter and less spreading.

A. venusta *Sargent.* SILVER FIR, SANTA LUCIA FIR. FIG. 1. Leaves sharp-pointed, 1-2 inches long, glossy green on the upper surface, silvery below. Cones oval, 3-4 inches long, about 2 inches in diameter, each bract of the cone scales with a linear appendage an inch long, spreading horizontally. Found only in the Santa Lucia Mountains, from Point Sur to south of Point Gorda. Tall pyramidal tree with slender pendent apex and drooping upper limbs. (*A. bracteata* Nutt.)

A. magnifica *Murr.* RED FIR. FIG. 2. Lower leaves flat, apparently 2-ranked; upper shorter, quadrangular, crowded, curving upwards. Cones oblong-cylindrical, 6-8 inches long (bracts of the narrow cone scales included). Bark reddish brown, bright crimson under the outer layer. Throughout the Sierra Nevada at upper elevations. The variety *Shastensis* Lemmon has bracts maturing in one year, drooping, often persisting after the seeds have fallen, with 3-pronged bracts conspicuously exserted over the cone scales, the middle prong longest.

P. mucronata *Sudworth.* Douglas Spruce, Red Fir, Oregon Pine. Fig. 1. Leaves about an inch long, bright green, rather slender, dense. Cones cylindrical, oblong, 2-4 inches long, little more than an inch in diameter, bracts straight. Bark thick, brown, fissured. Becomes a large tree 100 feet or more in height. Common in the Coast Mountains to San Luis Obispo County and in the Sierra Nevada to a little south of Yosemite. The most important source of lumber in Oregon and Washington. (*P. taxifolia* Britt., *P. Douglasii* Carr.)

P. macrocarpa *Lemmon.* Fig. 2. Leaves narrower than in the preceding, more acute; cones twice as large, with bracts reflexed. A large tree with immense spreading limbs. Reaches its greatest size in the mountains of San Diego County where it forms forests; also found on the mountains which run east and west from the Santa Inez to the Sierra Nevada and in San Bernardino County.

TSUGA. Hemlock.

Plate IX.

Leaves linear, solitary, 2-ranked, petioled, and jointed

LARIX. Larch, Tamarack.

Leaves deciduous, short, linear, clustered in short-stemmed tufts along the branchlets. Cones small, ovate or oblong, 1-2 inches long, resembling a spruce cone, generally pendent, having a bristly appearance from the spine-like tips of the bracts accompanying each cone-scale.

L. occidentalis *Nutt.* One of the largest trees with thick bark. Cones oblong, 1-1½ inches long. Leaves 3-sided, 1-1¾ inches long, light green, stiff and pointed. East of the Cascade Mountains from British Columbia to Oregon.

L. Lyallii *Parl.* Small tree. The young branchlets and buds clothed with white down. Cones 1½-2 inches long, the red-purple bracts recurving. Leaves 4-sided, 1-1½ inches long, blue-green. Timber-line in the mountains of Washington and Oregon, and extending northward.

to a prominent woody base which leaves the stem rough when denuded. Cones small, drooping, maturing in one season, scales persisting on the axis.

T. heterophylla *Sargent.* COAST HEMLOCK. Leaves thin, ¼-⅓ inch long, flat, obtuse. Cones less than an inch long, about as large as a thimble, numerous. Found from Mendocino County northward to Alaska, becoming 100-200 feet high.

T. Mertensiana *Carr.* PATTON'S SPRUCE, SIERRA HEMLOCK. Leaves ½-1 inch long, acute at apex, attenuate at base, often curved. Cones oblong-cylindrical, 2-3 inches long, purple when young. Becomes a tall tree with spreading trunk, pendent branches, and gracefully drooping apex. In the Sierra Nevada and northward at an elevation of 7000-8000 feet; less common and smaller in the southern Sierra Nevada; extends northward to Alaska. (*Tsuga Pattoniana* Engelm.)

PICEA.[1] SPRUCE.

PLATE X.

Leaves spirally arranged but occasionally becoming 2-ranked, quadrangular, sessile, but inserted on woody projections which leave the stem rough when the leaves fall. Cones pendent from the upper branches. Scales important tree of the coast of northern California; abundant near Crescent City.

P. Breweriana *Watson.* WEEPING SPRUCE. Leaves abruptly narrowed to an obtuse apex, flattened, about an inch long. Cones oblong-cylindrical, 2-5 inches long. A rare tree in the high mountains of Siskiyou and Trinity counties; distinguished by long pendent branches which fall over the tree like a veil. It is also found, but rarely, in the high mountains of southern Oregon.

PINUS. Pine.

Leaves needle-shaped, sheathed at base, with 1-5 needles in a sheath. Cones with woody scales persisting on the axis. Seeds winged, falling from the cone when ripe or remaining in the closed cone for years—generally until a fire sweeps over the forest or hills.

ANALYTICAL KEY, ARRANGED ACCORDING TO THE LEAVES.

FIVE-LEAVED.	**P. Lambertiana, P. monticola, P. flexilis, P. albicaulis, P. Balfouriana, P. aristata, P. Torreyana.**
FOUR-LEAVED.	**P. quadrifolia.**
THREE-LEAVED.	**P. ponderosa, P. Jeffreyi, P. Sabiniana, P. Coulteri, P. radiata, P. attenuata.**
TWO-LEAVED.	**P. contorta, P. Murrayana, P. muricata.**
ONE-LEAVED.	**P. monophylla.**

LEAVES FIVE IN A SHEATH.[1]

Cone scales without prickles or knobs.

Stems of cones 2-3 inches long, erect the first year, pendent the second.

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[1] **Pinus Arizonica** *Engelm.* YELLOW PINE. Leaves 5 in a sheath, 5-7 inches long. Cones oval, about 2 inches long, on short stout stems, the scales with slender recurved spines. Tree with stout trunk and rounded top. Mountains of southern Arizona at upper elevations.

P. monticola *Dougl.* White Pine, Mountain Pine, Little Sugar Pine. Plate xi, fig. 1. Leaves 2-4 inches long. Cones 5-8 inches long, cylindrical, the scales flaring backwards after the seeds are discharged and the cone fallen to the ground. Tall tree with the upper limbs or young growth pale gray, the old trunk brown with the bark in plates. At great elevations in the Sierra Nevada but at lower elevations in the northern Coast Mountains, extending northward to Washington.

P. Lambertiana *Dougl.* Sugar Pine. Plate xi, fig. 2. Leaves 3-4 inches long. Cones 1-1½ feet long, cylindrical. Large tree sometimes 300 feet high, with light brown smoothish bark. A valuable timber tree which receives its popular name from the exuded resin becoming sugary on the trunk. On all the higher mountains of the Coast Range and in the Sierra at an elevation of about 5000-7000 feet. It extends northward to Oregon and Washington.

Stems of cones short or wanting, erect the first year, becoming horizontal or slightly declined the second.

P. flexilis *James.* White Pine. Leaves 1-2 inches long. Cones oval, 3-5 inches long, the scales spreading open when ripe. Seed with very small wing. A medium

County, where it is replaced by *P. Balfouriana.* It extends northward to British Columbia; is also found on the mountains of Nevada and Arizona.

Cone scales with prickles.

(Sometimes the prickles are deciduous on the older cones.)

P. **aristata** *Engelm.* FOXTAIL PINE. Leaves 1-2 inches long. Cones ovate, 3-4 inches long with the prickles of the scales slender, recurved. Tree of medium size. Rare in California, growing on the eastern side of the Sierra Nevada and of Mount Pinos in Ventura County; extends to Arizona.

P. **Balfouriana** *Jeffrey.* BALFOUR'S PINE, FOXTAIL PINE. PLATE XII, FIG. 2. Leaves about an inch long, rigid, curved, crowded. Cones pendulous from the ends of the branchlets, dark purple, 3½-5 inches long. Scales thickened at the end, the prickle often short or even wanting on the old cone. Seeds with conspicuous wings. Medium tree of rugged outline. Bark deeply fissured, red-brown. Grows at or near timber-line on the high peaks and passes of the southern Sierra Nevada and on the mountains near Mount Shasta in northern California.

Cone scales with thick pyramidal knobs.

Stems an inch long, spreading or deflexed.

P. **Torreyana** *Parry.* TORREY PINE. PLATE XIII, FIG. 1. Leaves crowded at the ends of stout branchlets, thick, about a foot long. Cones broadly ovate, about 4 inches long and almost as wide at base. Scales with a stout short beak, sometimes inflexed. Seeds twice as long as the woody-based wing. Small tree with flattened top and spreading branches. Found only along the coast near San Diego and on Santa Rosa Island.

LEAVES FOUR OR ONE IN A SHEATH.

Soft-shelled Nut Pines.[1]

P. quadrifolia *Sudworth.* PARRY'S NUT PINE. Leaves 1-1½ inches long, generally 4 but sometimes 3 or 5. Cones globose, about 2 inches thick, the scales forming prominent knobs. Small tree with round top. Found south of San Diego and in the San Jacinto Mountains. (*P. Parryana* Engelm.)

P. monophylla *Torr. & Frem.* ONE-LEAVED PINE, NUT PINE. PLATE XIII, FIG 2. Leaves solitary in the sheath, rigid, spiny-tipped, cylindrical. Cones 1-2 inches long and almost as thick at base, with few protuberant scales. Seeds of this and the preceding are almost without wings. Small tree with irregularly spreading branches and pale foliage. Grows on dry hills in Kings and Kern River cañons, on the mountains connecting the coast with the Sierra Nevada, and especially on the eastern slope of the Sierra Nevada where the trees are abundant and the nuts form the most important article of food for the Indians. It extends to the mountains of Arizona.

LEAVES THREE IN A SHEATH.[2]

Cones at the ends of branchlets.

large plates. One of the most important timber trees. Widely distributed through the Coast Mountains at upper elevations and in the Sierra Nevada associated with the sugar pine. The form in Arizona has been called *P. latifolia* Sargent.

P. Jeffreyi *Murr.* PLATE XIV, FIG. 2. This is considered by some of the best authorities to be a variety of the preceding. The bark is darker, cones are much larger, and leaves shorter. It grows at greater elevations.

Cones lateral.

(The branch grows out beyond them.)

Scales armed with stout claws.

Hard-shelled Nut Pines.

P. Sabiniana *Dougl.* DIGGER PINE, NUT PINE, GRAY-LEAF PINE. PLATE XV. Leaves slender, drooping, light green or glaucous, a foot long. Cones short-oval, large, 6-10 inches long, 4-6 inches in diameter, the heavy scales armed with hooked claws, the stems stout, 1½ inches long. A picturesque tree with open spreading branches. Common in the hot interior valleys of the Coast Mountains and in the foothill region of the Sierra Nevada and the San Bernardino mountains. The nut forms a most important article of food among the Digger Indians.

P. Coulteri *Don.* COULTER'S PINE, BULL PINE, BIG-CONE PINE. PLATE XVI. Leaves crowded at the ends of the branchlets, stiff, bright green, ½-1 foot long. Cones on short stems, long-oval, pointed, 10-14 inches long, 4-5 inches in diameter; scales with a stout sharp claw strongly curved, an inch or more long. In this and the four preceding the cones persist on the trees some time after the seeds have been discharged and when they fall leave the lower scales attached to the stem, which persists for some time. On high ridges and peaks of the Coast Mountains from Mount Diablo south; also on the mountains of southern California.

Cones oblique, whorled, scales knob-like, armed with prickles.

P. radiata *Don.* MONTEREY PINE. PLATE XVII, FIG. 1. Leaves crowded, slender, dark green, 4-6 inches long, closely serrate. Cones in whorls deflexed on short stems, obliquely short-oval, pointed. Scales on the outer side thick, mound-shaped, much larger than the flatter inner ones. Tree with spreading branches and brown fissured bark. Common on the coast of Monterey Bay and extending somewhat to the north. Common in cultivation. (*P. insignis* Dougl.)

P. attenuata *Lemmon.* SCRUB PINE, KNOB-CONE PINE. PLATE XVII, FIG. 2. Leaves 3-7 inches long, slightly serrulate. Cones in whorls of 2 to many, persisting closed on the tree until after a fire, strongly reflexed on short stems, 3-5 inches long, pointed, oblique. Scales thick and conical on the outer side, almost flat on the inner, all with sharp prickles. Small tree, loosely branched, with thin, light brown bark. It bears cones when a foot or so high. Common in the hills of the Coast Mountains and in the foothills of the Sierra with spreading branches and rounded or depressed top. Along the coast near swamps in northern California and on dry hills inland. On the sandy barrens near Mendocino City the trees bear cones when only a few inches high. Extends northward.

P. Murrayana *Murr.* TAMARACK PINE, LODGE-POLE PINE. PLATE XVII, FIG. 4. Leaves thick, about 2 inches long, serrulate. Cones small, slightly oblique, opening at maturity and soon falling. Tall slender tree with smooth, straight, light brown trunk. Common on the borders of mountain streams, meadows, and lakes in the Sierra Nevada at upper elevations; widely distributed in the mountains northward and eastward.

Cones lateral, rarely subterminal.

P. muricata *Don.* COAST PINE, BISHOP PINE. PLATE XVII, FIG. 5. Leaves stiff, strongly serrulate, 4-6 inches long, dense. Cones oblique, whorled, sessile, recurved, spreading, 2-3 inches long; often remaining closed many years and persisting after opening even on the main trunks of large trees. Scales knob-like, tipped with stout spines turning toward the base of the cone on the outer scales. Tree of medium size, with spreading branches, flat top, reddish bark. Along the coast from northern California to San Luis Obispo. There are fine groves along Tomales Bay in Marin County and on the hills and cañons rising therefrom.

CLASS II. ANGIOSPERMS.

MONOCOTYLEDONOUS PLANTS. ENDOGENS.

Stems with woody fiber scattered, never arranged in rings. Flowers usually with the parts 3 or some multiple of 3. Leaves generally parallel-veined.

Divisions of the flower 6, greenish, in 2 dissimilar sets. Ovary superior, in fruit forming a berry or stone fruit. PALM FAMILY.

Divisions of the flower 6 in 1 set, all petal-like. Ovary superior, in fruit forming a dry pod with 3 divisions, or becoming fleshy. LILY FAMILY.

PALMÆ. PALM FAMILY.

Stems simple, the leaves forming a crown at summit, pinnately divided, or circular and fan-shaped with stout petioles sheathing the stem and often persistent on the trunk. Flowers small, sessile, on a simple or branched axillary stem, which is at first enveloped in a leaf that falls off; outer divisions of the flower united, forming a cup, folding over each other in the bud, the inner meeting by the edges in the bud; stamens shorter than the floral divisions. Ovary 3-celled or of 3 distinct carpels. Stigmas short or wanting.

⅓ inch in diameter, with sweet pulp. Native of San Bernardino and Riverside counties, but cultivated throughout California, particularly in the southern part of the state.

LILIACEÆ. LILY FAMILY.

Stems simple or branched. Divisions of the flower all alike and resembling petals. Ovary superior. Stamens 6. The only native trees of this family are the yuccas. Cordyline, or as it is called Dracæna or dragon palm, is better known throughout California, being extensively cultivated.

YUCCEÆ.

Divisions of the flower thick, curved inwards; style wanting. **Cleistoyucca,** Tree Yucca, Josua Tree.

Divisions of the flower thin, spreading at night; style evident. **Yucca,** Spanish Dagger.

Cleistoyucca arborescens *Trelease.* TREE YUCCA, JOSUA TREE. PLATE XIX. Widely branching, becoming 30-40 feet high. Rough gray bark. Leaves densely crowded at the ends of the branchlets, stiff and dagger-like, tapering from a dilated base, 5-6 inches long, bluish green, margins minutely serrulate but without thread-like filaments. Flowers in large sessile panicles, greenish white, globose, densely clustered, the almost distinct divisions curved inwards; filaments thick; anthers arrow-shaped. Ovary egg-shaped, tapering to a sessile star-shaped stigma. Fruit a dry pod, spongy, with papery core, not splitting open when ripe but scattered by the wind over the desert. Common on the Mohave Desert and the valleys and hills branching therefrom.

Yucca Mohavensis *Sargent.* SPANISH BAYONET, TREE YUCCA. PLATE XX. Fifteen feet or less in height, simple or with short branches at top. Trunk with dark brown bark, or often clothed with leaves to the base and surrounded with smaller stems. Leaves yellowish green, about 2 feet long, 3 inches wide at base, abruptly tapering to the lanceolate blade, which is strongly incurved at the dagger-like tip, and with threads along the margins. Flowers in dense heavy panicles, 1-1½ feet long, on very short peduncles; flowers 1-2 inches long, cream-color tinged with purple, with short stems at first erect, later pendent; stamens with hairy filament. Ovary sessile, narrowed to a short style; 3-lobed stigma with notched divisions. Fruit drooping, 3-4 inches long, 1½ inches thick, constricted near the middle, becoming purple or black when ripe, with sweet succulent pulp half an inch thick. Near San Diego, Mohave Desert, San Bernardino and San Jacinto mountains.

DICOTYLEDONOUS PLANTS. EXOGENS.

Stems with woody fiber arranged in rings. Parts of the flowers 4 or 5 or some multiple of those numbers. Leaves netted-veined.

SALICACEÆ. WILLOW FAMILY.

Trees or shrubs with deciduous leaves. Staminate and pistillate flowers in catkins and on separate trees; calyx the older leaves. Stamens 1-6 to each scale of the staminate catkin, the filaments often united at base, anthers yellow. Pods small, ovate, pointed, splitting from the top into 2 parts. Buds covered with scales, which fall as the catkins expand and are then generally called 'pussies.'

KEY TO THE WILLOWS.

CATKINS ON SHORT LEAFY BRANCHLETS APPEARING WITH THE LEAVES.

- Leaves lanceolate, tapering at top, serrate.
  - Leaf-stalks without glands.
    - Leaves narrowly lanceolate, bright green on both sides. **S. nigra.**
      - Paler on lower side.
        - Teeth incurved. **S. occidentalis.**
        - Teeth rounded. **S. Mackenziana.**
    - Leaves ovate-lanceolate, paler on lower side.
        - Teeth obscure. **S. lævigata.**
        - Teeth gland-tipped. **S. amygdaloides.**
  - Leaf-stalks with glands. **S. lasiandra.**
- Leaves long and narrow linear to lanceolate, entire or finely and sparsely toothed, smooth to white downy on both sides.
  - Pods with large sessile stigmas. **S. fluviatilis.**
  - Pods with linear, lobed stigmas. **S. sessilifolia.**
- Leaves short and narrow, apparently in 2 ranks. **S. taxifolia.**
- Leaves evergreen, lower surface silvery white, upper yellowish green. **S. Bonplandiana.**

CATKINS APPEARING BEFORE THE LEAVES.

(Generally sessile or on very short stems.)

- Leaves broadest toward the top, paler and often densely woolly on the lower side.
  - Catkins long, generally erect.
    - Pods smooth; stamens 2, united. **S. lasiolepis.**
    - Pods downy; stamens 2, separate. **S. Hookeriana.**
    - Pods white-woolly; stamens 1 or rarely 2. **S. Sitchensis.**
  - Catkins short, often recurving; pods downy; stamens 2, united. **S. Nuttallii brachystachys.**

Salix nigra *Marsh.* BLACK WILLOW. Trunk very dark, generally leaning over streams. Leaves narrowly lanceolate, sometimes curved, 4-6 inches long, ¼-⅜ inch wide, narrowed to a long point, closely serrate, smooth and bright green on both sides. Catkins on leafy branchlets, the staminate with 3-5 stamens on each scale, the pistillate with tawny pods on short pedicels, the styles short and stigmas notched. Along the San Joaquin and Sacramento rivers and their tributaries, chiefly in bottom lands; extends into eastern Oregon and Arizona. The variety *vallicola* Dudley is the form common in California south of Tehachapi. It is the largest willow in that section and is common along streams.

S. occidentalis *Koch.* Small tree with dark brown deeply fissured bark. The young branches are downy, becoming brownish. Leaves lanceolate, tapering to a long slender point, serrate, 2-6 inches long, woolly when young but becoming bright green and glossy on the upper surface, silvery below; midribs yellow; stipules minute, soon falling. Catkins 1-2 inches long, on short leafy branchlets, loosely flowered. Stamens 5-6 to each scale. Pods smooth, ¼ inch long, on long pedicels, the small sessile stigmas having notched lobes. Scales of the catkin woolly, yellow. In the southern Sierra Nevada and extending into Arizona.

S. Mackenziana *Hook.* Leaves lanceolate or oblance-

S. lævigata *Bebb.* BLACK WILLOW. Trunk straight with dark brown fissured bark. Leaves glossy green on upper surface, paler on lower, lanceolate to oblong, mucronate to pointed, 3-7 inches long, ¾-1½ inches wide, entire or serrulate. Catkins on leafy branchlets, laxly but rather densely flowered. Stamens 5-6 to each scale. Pods smooth, brownish, on short pedicels, with short style or none, and notched stigmas. Scales of the catkin pale and hairy, toothed. Along streams at middle elevations in the Coast Mountains and Sierra Nevada.

S. amygdaloides *Anders.* PEACH WILLOW, ALMOND WILLOW. Leaves lanceolate, tapering to a long point, minutely glandular-toothed, bright green above, paler beneath with yellow midrib, 2½-4 inches long, ¾-1¾ inches wide. Stipules kidney-shaped, glandular-toothed. Catkins 2-3 inches long. Stamens 5-9 to each scale. Pods smooth, on long pedicels with short style and 2-lobed stigma. British Columbia to Oregon and Washington along streams in the interior, but rare.

S. fluviatilis *Nutt.* SAND-BAR WILLOW. Small tree or shrub from smooth to white-woolly. Leaves linear-lanceolate, tapering to a long point, 2-6 inches long, ⅛-⅓ inch wide, glandular-toothed, paler on the lower than on the upper surface and with yellow midribs. Catkins on leafy branchlets appearing after the leaves, the staminate 1 inch long, with 2 stamens to each scale, the pistillate 2-3 inches long. Pods loosely spreading on short pedicels, and with broad, sessile, lobed stigmas. Widely distributed in various forms throughout all the region adjacent to the Pacific Coast, growing along river banks and sand-bars.

S. sessilifolia *Nutt.* PALE WILLOW. Leaves sessile, lanceolate or linear-lanceolate, tapering to a long point, entire or sparingly toothed, gray-green from the white hairs that clothe both sides, but becoming smoother with age; 1½-5 inches long. Catkins at the ends of short leafy branchlets, the staminate about an inch long, the pistillate 3 inches; stamens 2 to each scale. Pods on short pedicels or sessile, woolly. Style short; stigmas with linear lobes. The typical form is common in Oregon and northern California. In the Coast Mountains and valleys along streams is found the variety *Hindsiana* with narrower leaves, entire and paler gray. It forms conspicuous clumps wherever it is found.

S. lasiandra *Benth.* BLACK WILLOW. Trunk dark brown, fissured. Leaves lanceolate, tapering, smooth and green above, paler below, closely and sharply serrate; petioles glandular at upper end. Stipules often large, half-moon shaped, edged with glandular teeth. Pods lanceolate, on short pedicels with short styles and 2-cleft stigmas. Stamens 5 or more to each scale; the scales thin, yellowish, hairy or smooth. From California to British Columbia.

S. lasiolepis *Benth.* WHITE WILLOW. Shrub or tree with smooth grayish bark. Leaves oblanceolate or oblong-lanceolate, 4-6 inches long, ½-1 inch wide, obtuse, more or less pubescent, often densely woolly on stamens 2 to each scale. Pods smooth, acute, dark green, on short pedicels, the styles medium, tipped by short erect stigmas. Scales dark, densely clothed with crisp white hairs. Extending through California, inhabiting stream banks and dry arroyos; found even in the sand-hills of the coast, extending north to Oregon.

S. **Nuttallii brachystachys** *Sargent.* Small tree or shrub with brown-gray fissured bark. Leaves obovate or oblanceolate, acute, acuminate, or obtuse, 2-3 inches long, 1-2 inches wide, entire or serrate, dull green above, clothed with silky tangled hairs below, often felt-like, sometimes tawny. Catkins sessile, oblong, recurving, short; stamens 2 to each scale, with long filaments. Pods densely woolly, on short pedicels. Stigmas sessile, entire or deeply parted, with reflexed linear lobes. Scales blackish, with long, silky, white hairs. Common along the coast from Santa Barbara to Alaska.

S. **Sitchensis** *Sans.* VELVET WILLOW. Leaves oblong, ovate or oblanceolate, acute or obtuse, 1-5 inches long, ½-2 inches wide, dark green and veiny on the upper side, clothed with dense white wool beneath but becoming smoother with age. Catkins erect, sessile or on short stems with bract-like leaves below, appearing before the leaves, 2-4 inches long. Stamens 1-2 to each scale. Ovary with short pedicel narrowed to a short style with entire or notched stigmas. Scales of the catkin yellow, clothed with long white hairs. Commonly a shrub. Found from Santa Barbara to Alaska.

Salix Hookeriana *Barratt.* Leaves oblong or oblong-obovate, shortly pointed, coarsely and bluntly serrate, sometimes entire, upper part yellow-green, lower clothed with silvery white down, 2-6 inches long, 1-1½ inches wide. Catkins on very short stems with a few small leaves at base, 1½ inches long. Stamens 2 to each hairy scale. Pods narrowed to a long style with broad stigmas; the pedicels short. Along the coast from Vancouver Island to southern Oregon.

POPULUS.[1] COTTONWOOD, POPLAR, ASPEN.

PLATE XXII.

Leaves broad, glandular-crenate. Buds scaly, generally resinous. Catkins appearing before the leaves, pendulous, axillary, the bracts toothed or fringed. Stamens inserted on a disk with distinct filaments and purple anthers that stain the ground where they fall. Pods ovate or globular from a cup-shaped disk, loose. Styles 2-4, lobed or divided, often united at base.

P. tremuloides *Michx.* ASPEN. Slender tree, 20-50 feet high, with straight slender trunk, grayish white smooth bark covered with a bloom in the spring. Leaves broadly ovate to orbicular, 1-3 inches across, tapering near the top, cordate or wedge-shaped at base, crenulate. Petioles slender, flattened contrary to the blade so that the leaves move in the slightest breeze. Stamens 6-10 to each disk, with short filaments. Pods smooth, small, on slender pedicels, splitting into 2 parts when ripe. In the Sierra Nevada at the elevation of the pines, 6000-10,000 feet.

P. trichocarpa *Torr. & Gray.* BALSAM COTTONWOOD. Tree 30-50 feet high with cracked bark. Leaves broadly ovate to oblong-lanceolate, pointed, cordate or rounded catkins densely flowered, with filaments as long as the anthers. Pods almost sessile, round, splitting into 3 parts when ripe. Throughout California along streams, but not near the coast.

P. Fremontii *Watson*. FREMONT'S COTTONWOOD. Large tree with spreading branches, bark gray, cracked. Leaves broadly triangular, 2-4 inches broad, 1½-3 inches long, abruptly pointed at apex, with a broad inward curve at base, green on both sides, smooth, with rounded teeth on the margin except near the apex and base. Petioles not flattened. Staminate catkins densely flowered with many stamens to each disk. Anthers dark red. Pods ovate, on short stout pedicels, splitting generally into 3 parts when ripe. Grows along water courses in the valleys of the Coast Mountains, Sierra Nevada, and great interior valley.

MYRICACEÆ. WAX-MYRTLE FAMILY.

Trees or shrubs with alternate, simple, fragrant leaves. Flowers and fruits in short, sessile, erect catkins; the pistillate and staminate flowers rarely in the same catkin, each destitute of calyx or corolla, solitary and sessile in the axil of a scaly bract, the staminate of 6-16 united filaments and reddish anthers, the pistillate a 1-celled, 1-ovuled ovary and 2 thread-like stigmas. Fruit in short spikes, each berry like a small dark purple pea, the granular surface unevenly coated with grayish white wax.

MYRICA. WAX-MYRTLE, BAYBERRY.

PLATE XXIII.

M. Californica *Cham*. Small tree or shrub, 3-30 feet high. Leaves evergreen, oblanceolate, 2-4 inches long,

½ inch or less wide, acute at apex, narrowed to a short petiole, serrate especially towards the top, smooth, dark green, glossy. Staminate and pistillate flowers on the same plant, the catkins solitary or more often densely clustered in the leaf axils. Common along the coast from Los Angeles to Washington, generally growing in the shade along water courses.

There is one other species in California, *M. Hartwegi* Watson. This is only a shrub. Leaves deciduous, aromatic. Pistillate and staminate flowers on separate plants. Fruit winged by sharply tipped bractlets. Stamens 3-4 to each flower. In the Sierra Nevada near Lake Tahoe, Yosemite, Wawona, etc.

JUGLANDACEÆ. WALNUT FAMILY.

JUGLANS. WALNUT.

PLATE XXIV.

J. Californica[1] *Watson*. CALIFORNIA WALNUT. Leaves alternate, odd-pinnate with numerous serrate leaflets, 5-8 pairs, each leaflet about 2 inches long. Staminate and pistillate flowers on the same tree but separate, the former becoming a globular, solitary nut about an inch in diameter, covered with a dry, dark brown husk when ripe;

BETULACEÆ. Birch Family.

Trees or shrubs with deciduous, alternate, toothed leaves. Pistillate and staminate catkins on the same tree; when young covered with resin but not protected by bud scales; staminate catkins pendent, elongated, each flower consisting of 2-4 stamens in a 4-lobed or scale-like calyx under the bracts of the catkin; pistillate flowers in short erect cones, each flower having a 2-celled ovary and 2 stigmas but neither calyx nor corolla.

BETULA. Birch.

Stamens 2 with 2-forked filaments and separate anther cells. The staminate catkin with shield-shaped bracts; pistillate catkins with 3-lobed bracts and winged seeds, the bracts and seeds falling from the axis when the seeds are ripe. Trees or shrubs with smooth bark in layers. Flowers appearing with or before the leaves.

B. fontinalis *Sargent.* Black Birch. Small tree or shrub 10-20 feet high, with brown bark on trunk. Branchlets dotted with resinous glands. Leaves thin, broadly ovate, 1-1½ inches long, margin with gland-tipped serratures, sometimes slightly lobed, resinous on the upper surface, sometimes downy on the lower. Petioles slender, almost half an inch long. In northern California along mountain streams and in the Sierra Nevada chiefly on the eastern side.

ALNUS.[1] Alder.

Plate XXV.

Stamens to each flower 4, opposite the lobes of the small calyx, with very short filaments and anther cells close together. Scales of the staminate catkin shield-shaped, on short stems; pistillate catkins erect, becoming dark brown and woody, persisting on the tree after the seeds have fallen, resembling small cones. Trees or shrubs with catkins appearing before or with the leaves.

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[1] **Alnus Sitchensis** *Sargent.* Small tree or shrub. Leaves broadly ovate, crenately lobed, the short lobes sharply glandular-serrate. Staminate catkins 4-5 inches long. Cones about ½ inch long, on slender stems, often in compound leafy clusters. Seeds winged. From Alaska to Oregon.

A. Oregona *Nutt.* RED ALDER. Bark pale gray or white mottled with darker gray. Leaves ovate or elliptical, rusty pubescent on the lower surface, doubly serrate with revolute margins to the teeth. Cones oblong, almost an inch long. Seeds winged. Winter buds glutinous, almost ½ inch long. In cañons near the coast throughout the state and extending to Alaska. (*A. rubra* Bong.)

A. rhombifolia *Nutt.* Bark light brown, smooth. Leaves ovate or oval, paler beneath, irregularly glandular-toothed. Cones oblong, almost an inch long. Seeds margined but not winged. The fruit ripens early in the year, as the next season's flowers are blooming. Widely distributed throughout California.

A. tenuifolia *Nutt.* A small tree, or often forming thickets. Bark red-brown. Leaves ovate, rounded or heart-shaped at base, doubly serrate with acute teeth, veins prominent. In the Sierra Nevada and northward,

QUERCUS. OAK.

Staminate flowers in drooping, fringe-like catkins (erect in *Q. densiflora*, the tan bark oak), each flower with a 6-lobed perianth; pistillate flowers usually single, consisting of a 3-celled ovary which becomes an acorn with only one ovule maturing to form the nut. Stigmas 3.

BLACK OAKS.

Bark dark, almost black; leaves dark green and glossy.

Deciduous species.

Q. Californica *Cooper*. BLACK OAK, KELLOGG'S OAK, YOSEMITE OAK. PLATE XXV, FIG. 1. Leaves with sharp-pointed pinnate lobes, the spaces between the lobes broad and shallow, the lobes coarsely and sharply toothed, 4-9 inches long, 2-4 inches broad. Acorns ripening the second season, on short stalks, often solitary; nut oval in outline, obtuse, 1 inch long, often downy; cup large and deep, about an inch broad, clothed with thick obtuse scales. When the young leaves begin to unfold in the spring they look like flowers, being rose-color and downy; some young trees have all the leaves densely white-downy. One of the commonest oaks, becoming a noble tree 70-80 feet high in the Coast Mountains not far from the sea, from the northern to the southern part. It is the chief oak in the yellow pine belt in the Sierra Nevada; Yosemite, Lake Tahoe, Kings and Kern cañons, Mount Shasta.

Q. Morehus *Kellogg*. PLATE XXVI, FIG. 2. Leaves oblong, 3-4 inches long, 1-2 inches broad, coarsely toothed, the teeth sharply pointed and the spaces between broad and shallow. Acorns ripen the second season; solitary on short stems; nut oblong, obtuse; the cup much shorter with smooth ovate scales. Shrub or small tree in the Coast Mountains and the Sierra Nevada; always rare and never forming forests; more often shrubby than arborescent. It is considered by some to be a hybrid between the preceding and the following species. It does not lose its leaves until the new leaves are almost ready to appear.

Leaves persistent and evergreen.

Q. Wislizeni *A. DC.* LIVE OAK. PLATE XXVI, FIG. 3. Leaves stiff, bright green, somewhat holly-like, smooth and glossy, spiny-toothed or sometimes entire, 1-5 inches long. Fruit matures the second season; the acorns sessile or on very short stems; nut variable in size and shape, sometimes almost completely enclosed in the rough-scaly, deep urn-shaped cup, generally acute. In the foothills of the Sierra Nevada this is the common live oak, forming a rounded symmetrical tree of some size, often with low spreading branches. In the Coast Mountains back from the coast it also becomes a good-sized tree, but more often it is shrubby on the dry hills, forming most of the oak chaparral. It extends from Mount Shasta to San Diego County and to the mountains of Los Angeles, Riverside, and San Bernardino counties.

Q. agrifolia *Neé.* LIVE OAK. PLATE XXVI, FIG. 4.

are often near the ground or prostrate. Found only in the Coast Mountains and as far inland as the influence of the coast fogs penetrates, from north of San Francisco to Southern California.

WHITE OAKS.

Bark usually light gray.

Deciduous species.

Q. lobata *Neé.* WEEPING OAK, VALLEY OAK, WHITE OAK, ROBLE. PLATE XXVII, FIG. 1. Leaves deeply lobed with obtuse divisions, 3-5 inches long, 2-4 inches broad; upper surface dark green and. stellate pubescent, lower surface paler and more densely pubescent. Acorns long and pointed, 1-3 inches; ripening the second season; the cup deep with a rough warty surface. A beautiful large tree often with pendent sterile branches from which the name, 'Weeping Oak,' is derived. Grows most luxuriantly in open fertile valleys, somewhat isolated, giving the country a park-like aspect. Is found in both the Coast Mountains and the Sierra Nevada from the upper Sacramento to Los Angeles County, but is not common south of Tehachapi. It does not extend above the foothill region of the Sierra Nevada.

Q. Garryana *Douglas.* MOUNTAIN WHITE OAK. PLATE XXVII, FIG. 2. Leaves thick, strongly veined, coarsely lobed with obtuse or acute lobes which are entire or again lobed, 4-6 inches long, 2-5 inches wide; upper surface glossy, lower paler, turning brown or red in the fall. Fruit ripens the second season. Acorns sessile or on short stems; nut oval, obtuse; cups small and shallow. It is similar to the preceding in some ways but is readily distinguished by the large tomentose winter buds. Common in Oregon and Washington and extends through the Coast Mountains to Santa Cruz County. It is the white oak of northern California and is generally found growing among the hills.

Q. Douglasii *Hook. & Arn.* BLUE OAK, HILL OAK, WHITE OAK. PLATE XXVII, FIG. 3. Leaves an inch or two long, oblong, with shallow, obtuse lobes, veiny, blue-green. Cup generally shallow, with flat scales; nut oblong, often swollen in the middle. Large or medium-sized tree, with spreading habit. Conspicuous on hillsides from the white trunks and blue-green leaves. Found in valleys and cañons of the Coast Mountains and the foothills of the Sierra Nevada from Mendocino County and the upper Sacramento to Tehachapi and a little south of there.

Q. Alvordiana n. sp. PLATE XXVII, FIG. 4. Small tree or shrub on hills near the desert. Leaves small, brittle and easily falling, dentate. Branches tough, widely spreading. Acorns long and very slender, with small, rather smooth cups. A little known oak in the mountains connecting the Coast Range with the Sierra Nevada at the southern end of the San Joaquin Valley bordering the deserts. It is named in honor of the late William Alvord, a former president of the California Academy of Sciences.

islands. It is named in honor of Captain James M. McDonald, who published 'West American Oaks.'

Leaves persistent and evergreen.

Q. Engelmanni *Greene.* LIVE OAK of Southern California. PLATE XXVIII, FIG. 1. Leaves on very short stems, oblong, 2-3 inches long, entire or with few teeth, obtuse or slightly cordate at base; young leaves serrate, downy, becoming smooth with age, dull green, often notched at apex. Acorns on long stems; nut oblong, marked with longitudinal lines, 1 inch long; cup tuberculate. Becomes a tree 25-40 feet high, with smooth trunk 2-3 feet in diameter. From Kern to San Diego counties.

Q. chrysolepis *Liebm.* GOLDEN-LEAF OAK, MAUL OAK, WHITE LIVE OAK. PLATE XXVIII, FIG. 2. Leaves elliptical, oblong-lanceolate or ovate-lanceolate, acute, spiny-toothed or entire, upper surface bright green, lower in young leaves clothed with golden scales, becoming pale gray-green and smooth in age. Fruit matures in two seasons. Acorns solitary, generally sessile, extremely variable in respect to both cups and nuts; some cups broad and shallow like saucers, some deep bowl-shaped, scarcely alike on any two trees. Trees in the Sierra Nevada have the cups so densely covered with yellow down that the scales cannot be discerned. A widely distributed species, becoming a tall large tree in cañons along streams; in the Coast Mountains frequently clothing high open summits and becoming a tree with large widely spreading branches and thick short trunk; above the foothill region in the southern Sierra Nevada associated with the nut pine on dry hills; also in the mountains of San Bernardino, Riverside, and San Diego counties.

Q. tomentella *Engelm.* ISLAND OAK. PLATE XXVIII, FIG. 3. Leaves oblong-lanceolate, 3-4 inches long, obtuse at base, obtuse or acute at apex, entire or with rounded teeth, thick, densely tomentose when young, becoming smooth on the upper surface when old. Nut large, ovate; cup broad and rather shallow, tomentose on the inner surface, scales of the outer tipped with appendages. Tree of medium size, symmetrical, with tomentose branchlets. Santa Cruz, Santa Rosa, San Clemente, and Catalina islands.

Q. densiflora *Hook. & Arn.* TAN-BARK OAK, CHESTNUT OAK. PLATE XXVIII, FIG. 4. Leaves thick, strongly veined, oblong, 2-5 inches long, an inch or more wide, entire, serrate or dentate, with short petiole; upper surface somewhat tomentose, bright green, lower densely tomentose. Catkins erect in flower, densely clustered and very numerous, with a strong and disagreeable odor when in bloom; staminate flowers above the pistillate ones on the same catkins. Acorns numerous, clustered; nuts oblong, inch long; cup densely clothed with weak fringe-like appendages; in bloom in summer, the fruit fully grown at the same time, taking a full year to mature. Noble tree of the Coast Mountains, becoming

ARIZONA OAKS.

150 feet or more in height; often spreading, with immense trunks and branches. In its method of flowering it is peculiar and forms a link between the chestnuts and the oaks. Its nearest relatives are in Asia. (*Pasania densiflora* Örst.)

CASTANOPSIS. CHINQUAPIN.

PLATE XXIX.

C. chrysophylla *A. DC.* Leaves lanceolate, pointed, 3-6 inches long, ½-2 inches wide, dark green on the upper surface, the lower yellow with a dense pubescence, becoming smoother in age, entire. Flowers in erect axillary or terminal spikes, generally clustered; staminate flowers sessile on the upper part of the spikes, with twice as many stamens as divisions of the perianth, these 5-6; pistillate flowers below in a scaly involucre. Ovary 3-celled with 2 ovules in each cell (maturing 1-3 nuts in a roundish involucre densely covered with brown intricately branching prickles). Blooms chiefly in summer, fruiting about the same time. Is generally shrubby, but becomes a large and beautiful tree in Mendocino County. Throughout California in the Coast Mountains. The shrub of the Sierra Nevada, *C. sempervirens* Dudley, has leaves obovate-oblong, obtuse at apex. It never becomes a tree.

Q. **reticulata** *H. & P.* Leaves persistent, blue-green, broadly obovate, cordate at base, the apex rounded, coarsely veiny, spiny-toothed with shallow teeth. Acorns small, sessile, in spikes 2-5 inches long; the stems persistent. Mountains of southern Arizona.

Q. **Tuomeyi** *Sargent.* Leaves persistent, blue-green, small, ovate to oblong, entire to spiny-toothed. Acorns small, sessile, solitary or in pairs. Mountains of Arizona.

Q. **Emoryi** *Torr.* BLACK OAK. Bark almost black. Leaves persistent, dark green, oblong-lanceolate, entire or wavy and serrate, tough. Acorns sessile or on short stalks. The nuts are used as food by the Mexicans and are called 'biotis'. Common in southern Arizona.

Q. **hypoleuca** *Engelm.* Leaves persistent, the upper side green, the lower white from the dense coating of white wool, lanceolate or elliptical, entire or spiny-toothed. Acorns small, solitary, sessile or on short stout stems. Mountains of Arizona.

CELTIDACEÆ. HACKBERRY FAMILY.

Trees or shrubs with stipules that soon fall. Pistils and stamens generally in separate flowers on the same plant, sometimes in the same flowers; petals wanting; stamens with filaments folded in the bud but straightening as the flower opens, (in the perfect flowers remaining folded); anthers opening toward the 2 broad styles of the simple pistil. Fruit a drupe.

CELTIS. HACKBERRY, SUGAR BERRY.

PLATE XXX.

C. reticulata *Torr.* Somewhat pubescent with short spreading hairs. Leaves alternate, deciduous, ovate with pointed apex, obliquely cordate at base, veiny and rough, often covered with wart-like galls, dark green on the upper surface, paler below, sharply serrate or almost entire, 2-4 inches long, 1-2 inches wide. Flowers small, greenish yellow, in small scattered bunches of 2 or 3 on slender hairy stems; calyx divisions extending to the base, of 5 ovate-lanceolate papery lobes with a tuft of hairs at the tips. Fruit ovate, orange-red when ripe, as large as a green pea, with thin flesh and smooth light brown nut. Shrub or small tree found in Southern

UMBELLULARIA. California Laurel or Bay, Spice Wood, Pepper Wood.

Plate XXXI.

U. Californica *Nutt.* Leaves evergreen, glossy, lanceolate-oblong, on short petioles. Flowers yellow, small, in umbels which before opening are enclosed in involucres that are soon deciduous. Fruit purple or greenish yellow when ripe, about an inch long, solitary or clustered on a short stout stem. Grows not far from water, forming large handsome trees, or becoming shrubby on hillsides. In bloom soon after the beginning of the rainy season. Found chiefly along the coast from Oregon to San Diego; also in the Sierra Nevada along the high western ridge and south to the higher parts of the San Bernardino Mountains.

PLATANACEÆ. Sycamore Family.

Leaves alternate, large, palmately lobed; stipules large, sheathing. Flowers in round balls strung at intervals on an axis, the pistillate and staminate on different axes; calyx and corolla wanting; stamens with short filaments and large anthers; pistils simple, each with 1 ovary, ovule, and style.

PLATANUS. Sycamore, Plane Tree.

Plate XXXII.

P. racemosa *Nutt.* Sycamore. Leaves 5-6 inches broad, 5-lobed with acute, entire divisions, downy, with stellate pubescence. A large tree with spreading branches. Trunk mottled gray and white. Along streams in the Coast Mountains and in the San Joaquin Valley; from Alameda County to San Diego and San Bernardino counties.

ROSACEÆ. ROSE FAMILY.

Herbs, shrubs, or trees. Leaves alternate, with stipules, though these are often small and deciduous. Stamens numerous on the persistent calyx; petals separate, sometimes wanting, soon falling.

Fruit with the outer coat fleshy; the seed within the stony inner coat (drupe or stone fruit).
    Stone globular. **Cerasus**, Cherry.
    Stone flattened. **Prunus**, Plum.

Fruit with the ovary contained in the calyx, which becomes fleshy—the whole being called a pome.
    Ovary with 2-5 cells, becoming papery in fruit (the apple core). **Malus**, Apple.
    Ovary 2-5-celled, with seeds like stones. **Cratægus**, Thorn.
    Ovary 2-celled, fruit a berry. **Heteromeles**, Toyon, Christmas Berry.

Fruit of 1 or 2 carpels containing 1 or 4 seeds, included in the calyx tube, which does not become fleshy.
    Carpels 1-seeded, with feathery tails. **Cercocarpus**, Mountain Maho.
    Carpels 2. each 2-seeded. **Lyonothamnus.**

CERASUS. CHERRY.

Trees or shrubs without spines. Flowers white, in racemes or corymbs. Fruit with stone almost globular (not flattened).

C. ilicifolia *Walp.* ISLAY, HOLLY-LEAVED CHERRY.

more numerous than in the preceding; fruit larger, with thicker pulp. On the islands off the coast of Santa Barbara; particularly notable on Santa Catalina Island. (*Prunus integrifolia* Sargent.)

C. demissa *Walp.* CHOKE-CHERRY. Generally shrubby. Leaves oblong to ovate, broadest above the middle, shortly pointed, 2-4 inches long, serrate with straight teeth, pubescent on lower surface. Flowers in many-flowered pendent racemes. Fruit globose, black when ripe, sweet but astringent; few left on the racemes owing to the birds. Throughout the state not far from water; nowhere common; extends into Oregon and Washington.

C. emarginata *Walp.* BITTER CHERRY. Small tree with slender reddish twigs. Leaves obovate or oblanceolate, 1½-3 inches long, obtuse or acute at apex, serrate with fine teeth, somewhat pubescent on the lower surface, with 2 glands near the summit of the leaf stalk. Flowers in corymbs which are shorter than the leaves. Fruit oval, dark red, astringent and bitter, ¼ inch in diameter. In the mountains of middle and northern California, but not common.

PRUNUS. WILD PLUM.

PLATE XXXIV.

P. subcordata *Benth.* Trees or shrubs, generally thorny. Flowers white, in sessile umbels appearing with or before the leaves. Leaves ovate, cordate at base, the apex obtuse or acute, sharply and finely serrate, about an inch long, finely pubescent. Corolla a half inch in diameter. Fruit a red plum, ¾ inch long, not palatable. A shrub in the Coast Mountains and at upper elevations in the Sierra Nevada; a tree in northern California and Oregon.

P. subcordata var. **Kelloggii** *Lemmon*. SIERRA PLUM. Fruit yellow, juicy and sweet. Leaves wedge-shaped at base, almost smooth. In Shasta and Sierra counties and northward.

MALUS. APPLE.

PLATE XXXV.

M. rivularis *Dec*. CRAB APPLE. Shrubs or small trees with the young parts woolly. Leaves deciduous, alternate, simple or lobed, ovate-lanceolate, acute or pointed, 1-3 inches long, glandular-serrate, green on upper surface, white-downy on lower. Flowers white, ¾ inch across, in simple cymes that sometimes become racemose, leafy at base; calyx divisions 5, falling with the stamens; petals orbicular; stamens 20, styles 2-4, smooth. Fruit red or yellow, obovate-oblong, half an inch or more long, the outside being the fleshy calyx tube, the papery core the seed vessel, with generally 3 cells having 1-2 seeds in each. From Sonoma County northward. Not common in California. Grows in shady places, often along streams; extends north to Oregon and Washington. (*Pyrus rivularis* Dougl.)

CRATÆGUS. THORN APPLE, HAWTHORN.

Shrubs or small trees with thorny branches. Leaves

C. rivularis *Nutt.* Leaves ovate or oblong, obtuse or acute at apex, tapering at base to a short slender stem, irregularly serrate or rarely lobed, 1-2 inches long. Flowers almost half an inch in diameter, in small corymbs; calyx lobes short and obtuse; fruit almost black. Not common; from Sierra and Plumas counties northward to Oregon and Washington.

C. Douglasii *Nutt.* Leaves broadly ovate, somewhat lobed or slashed, finely serrate, somewhat woolly on both sides, 1½-3 inches long, obtuse at base or tapering to a short stem. Spines on stem an inch long. Flowers in corymbs, generally numerous, ½-⅔ inch in diameter; lobes of calyx lanceolate, pubescent; petals orbicular. Fruit dark purple, ½ inch in diameter, sweet and edible. Found in northern California in the mountains, but not common; extends to Oregon and Washington.

HETEROMELES. Toyon, Christmas Berry.

PLATE XXXVI.

H. arbutifolia *Roem.* Shrub or small tree, the younger parts white-downy but becoming smooth with age. Leaves evergreen, glossy, simple, oblong-lanceolate, 2-4 inches long, acute at each end, sharply toothed, the edges often folding backwards. Flowers white, ¼ inch in diameter, numerous, in much branched panicles; odor sickening; petals 5 spreading; stamens 10 in pairs opposite the calyx teeth; fruit an obovate red berry ⅛ inch in diameter, slightly longer, seeds 1 or 2 in each of the 2 cells. In bloom in summer; fruiting from October to February, the berries persisting long after they are ripe and making one of the most ornamental trees or shrubs. The berries are extensively used as Christmas decorations and are therefore known as California holly. Found in the Coast Mountains, in the foothills of the Sierra Nevada, and in the San Bernardino Mountains. The berries are very rarely yellow and the trees attain the largest size on the islands off the coast of Santa Barbara.

CERCOCARPUS. MOUNTAIN MAHOGANY.

PLATE XXXVII.

Shrubs or small trees with very hard wood. Leaves evergreen, alternate, simple, serrate or entire. Flowers small; petals wanting; calyx tubular with 5-lobed, saucer-shaped border upon which the numerous stamens are inserted in 3 rows, the border falling off and leaving the tube that contains the seed vessel, tipped by the feathery style when ripe.

C. ledifolius *Nutt.* Leaves narrowly lanceolate with the margins turned under, thick and leathery, bright green and smooth on the upper surface, downy on the lower, ½-1½ inches long, midrib prominent, stem short. Flowers sessile, downy, the tail of the seed 2-3 inches long. Found chiefly on the eastern slope of the Sierra Nevada as a small tree or shrub; also found in Kings and Kern River cañons; in the San Bernardino and San Jacinto mountains on dry dills; also in Nevada and Arizona

C. Traskiæ *Eastwood.* Leaves oval to almost orbicular, 1-2 inches long, 1-1½ inches wide, at first clothed with white silky down, later becoming bright green and smooth on the upper surface but densely white-downy on the lower; veins prominent; margins serrate, folding inward in age; almost sessile or with short stems. Flowers in umbels in the leaf axils, densely covered with white down; anthers downy. Seed with tail 1½-2 inches long. A rare tree found in almost inaccessible cañons on Santa Catalina Island. The most beautiful of all the mountain mahoganies.

LYONOTHAMNUS.

PLATE XXXVIII.

Lyonothamnus floribundus *Gray.* Trees or shrubs with scaly bark coming off in long strips. Leaves evergreen, opposite, lanceolate, pointed, rounded or wedge-shaped at base, entire, crenate or serrate or variously lobed, closely feather-veined, dark green on the upper surface, paler and pubescent on the lower. Flowers white, small, on slender stems in compound cymes terminating the branchlets; calyx 5-lobed, persistent; petals 5, orbicular, sessile; stamens 15, 2 opposite each petal, 1 opposite each sepal; pistils 2, at bottom of calyx tube. Fruit of 2 woody, glandular, 4-seeded, 1-celled parts, splitting on both sides. A common and conspicuous tree and shrub on Santa Catalina Island. The tree which has been named *L. asplenifolius* Greene or var. *asplenifolius* is

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Vauquelinia Californica *Sargent.* Small tree or shrub with stiff contorted branches. Leaves alternate, narrowly lanceolate, densely clothed with white wool on the lower surface, light green on the upper, the margin with glandular teeth. Flowers in widely branched panicles terminating the branchlets, stems white-woolly; calyx with 5 ovate lobes; petals white, persisting and turning reddish, reflexed; stamens many; pods ovoid, woody, densely white-woolly, 5-celled and splitting into 5 parts, each containing 2 winged seeds. Found in southern Arizona; becomes a tree in Santa Catalina Mountains.

considered by some to be merely a form of the species. It has leaves as shown in figure 2. Found on San Clemente and Santa Cruz islands.

PAPILIONACEÆ. Pea Family.

Calyx of 5 sepals, more or less united, often somewhat irregular; corolla of 5 petals, shaped like a pea blossom, the spreading free petal called the banner, the 2 side petals called the wings, the 2 lowest united to form what is called the keel on account of the resemblance to the keel of a boat; stamens 10, either united or all free; pod 1-celled, containing 1-several seeds.

Stamens with filaments united to form a tube; pod 1-seeded, not opening when ripe. **Dalea.**

Stamens with 9 filaments united, 1 free; pod splitting when ripe into 2 parts, 1-2 seeded. **Olneya,** Iron-wood.

DALEA.

Plate XXXIX.

D. spinosa *Gray*. Either a small tree with short trunk or oftener a much-branched shrub, the branchlets terminating in slender spines; clothed throughout with fine white down giving the whole plant a pale gray color. Leaves few, simple, oblong or wedge-shaped, sometimes linear, obtuse, almost sessile, about an inch long, gland-with the persistent style, 1-seeded, not opening. The desert of the Colorado River in San Bernardino and San Diego counties, Palm Springs and other places in dry washes; Arizona.

OLNEYA. IRON-WOOD, ARBOL DE HIERRO.

PLATE XL, FIG. I.

O. Tesota *Gray*. Small tree, 15-20 feet high, with red-brown flaky bark. Stems spiny with short stout spines in pairs at the bases of the leaf-stalks. Whole plant gray-green with minute appressed hairs. Leaves pinnately compound; leaflets 5-7 pairs, thick, entire, obtuse or notched at top, oblong or wedge-shaped, ⅛-⅔ inch long. Flowers purplish, loosely arranged on rather long stems in short racemes, which are very numerous; bracts minute and papery, falling before the flower opens; calyx bell-shaped, 5-lobed, the upper 2 united almost to the top; petals all free with claws, the standard broadly orbicular, notched at top, about the same length as the others; stamens with 9 filaments united, 1 free; pod compressed between the large seeds, 1-3 inches long, opening like a pea-pod, 1-5-seeded, rough hairy on the outside and glandular with tack-shaped glands. Leaves and flowers in June; fruit in August. In dry washes of the desert of the Colorado River, Indio, Mesquite Cañon, and elsewhere; Arizona.

CÆSALPINEÆ. SENNA FAMILY.

Flowers more or less irregular with the petals all free, the upper differing from the others and corresponding to the standard in the preceding family; stamens 10, all distinct.

Leaves simple, round; flowers magenta, in axillary bunches before the appearance of the leaves; standard enclosed by the side petals; calyx toothed. **Cercis**, Red-bud.

Leaves compound; flowers yellow; the standard larger than the other petals and with a honey-gland at the base of the claw; calyx divided, with reflexed lobes. **Parkinsonia.**

CERCIS. RED-BUD, JUDAS TREE.

PLATE XL, FIG. 2.

C. occidentalis *Torr.* More frequently a shrub than a tree. Smooth throughout. Leaves round, cordate, or kidney-shaped, 2 inches across, entire, palmately veined, bright green. Flowers magenta, on thread-like stems in bunches in the leaf axils, appearing before the leaves; calyx bell-shaped with 5 short, broad teeth; petals 5, the standard enclosed by the side petals; stamens 10, free; pod 2 inches long, ¾ inch broad, flat and thin, many-seeded, becoming purplish when ripening, turning brown later. Generally found along streams from northern California to San Diego County; not found near the coast; common at lower elevations in the Sierra Nevada.

PARKINSONIA.

PLATE XLI.

Flowers in axillary racemes on jointed pedicels; calyx 5-lobed, the lobes reflexed; petals 5, yellow; stamens 10 with filaments all separate, hairy at base, the upper one spiny; each part ½-1½ feet long, flat, bearing numerous small, linear-oblong, scattered leaflets; racemes 3-6 inches long; flowers fragrant; an inch across; petals bright yellow, the upper ones marked with red spots; stamens shorter than the petals; pods 2-10 inches long, tapering at each end, longitudinally veined, much constricted between the seeds. Fort Yuma.

P. microphylla *Torr.* Small tree or shrub, 3-25 feet high, intricately branched, the short branchlets becoming spines. Leaves divided into 2 parts at base, each part with 4-6 pairs of very small, orbicular or oblong, bluish green leaflets on a cylindrical axis. Racemes an inch or less long, ⅛ inch across. Flowers pale yellow, upper petal white; stamens exserted; anthers orange; pod 1-3-seeded, 2-3 inches long, tapering at both ends; strongly constricted between the seeds. Fort Yuma, Arizona.

P. Torreyana *Watson.* PALO VERDE. Small tree 20-30 feet high, much branched at top. Light olive-green smooth bark. Generally leafless on account of the early falling of the leaves, very spiny and often zig-zag between the spines, which are ¼ inch long. Leaves an inch long, pale green clothed with white down, divided into 2 parts, each with 2-3 pairs of oblong, obtuse, pale green leaflets. Flowers yellow, 3-6, in short racemes; calyx 5-lobed with the lobes reflexed in flower and soon falling; petals 5, nearly equal, wavy-margined, the upper largest, with orbicular blade, the others obovate or spatulate. Pod 3-4 inches long with 2-8 seeds, often slightly constricted between the thick seeds. Flowering in April, fruiting in July. Growing in dry washes of the desert of the Colorado River, at Indio, Toros, and other places. Arizona. (*Cercidium Torreyana* Sargent.)

MIMOSEÆ. ACACIA FAMILY.

Flowers regular, numerous, in spikes or heads; calyx and corolla of 4 or 5 divisions; stamens as many or twice as many as the petals, or numerous, inserted on the receptacle. Fruit a pod like a pea-pod, opening in 2 parts when ripe; generally with several seeds.

Stamens 10; flowers greenish.	**Prosopis**, Mesquite.
Stamens numerous; flowers yellow.	**Acacia.**

PROSOPIS. MESQUITE.

PLATE XLII.

Flowers small, regular; calyx bell-shaped with very short teeth; corolla of 5 petals united below the middle or at length free, woolly on inner side; stamens 10, free, exserted; anthers tipped by a gland that soon falls; pod elongated, constricted between the seeds or spirally twisted, thick and spongy within, with thick partitions between the numerous seeds. Trees or shrubs. Spiny, with leaves compound, of 2-4 parts, each part with numerous small leaflets. Flowers small, greenish, in cylindrical spikes with stems an inch or less long.

P. juliflora *DC.* ALGAROBA, HONEY MESQUITE. FIG. 1. Leaflets 6-60 pairs, oblong to linear, ¼-1½ inches long.

pound leaf with 5-8 pairs of leaflets. Spikes densely flowered, 2-3 inches long. Pod thick, spirally twisted. Desert regions in sandy or gravelly bottom lands; Mohave Desert, Colorado River, San Diego County, Nevada, and Arizona.

ACACIA.

A. Greggii *Gray*. Cat's Claw, Uña de Gato. Plate xliii. Either a small tree 10-20 feet high, much branched, or a straggling shrub. Branches armed with stout recurved spines broad and flat at base, ¼ inch long. Leaves pale green, divided into 2-4 parts with 4-5 pairs of leaflets to each part; leaves and spikes clustered at the old leaf axils; leaflets unequal-sided, oblong or obovate. Calyx 5-toothed; petals 5, more or less united. Pod flat, compressed between the seeds, curled or somewhat twisted when ripe; seeds almost orbicular, ¼ inch in diameter. Flowering from April to September, the pods persisting. On the western border of the Desert of the Colorado River at an altitude of 2000-3000 feet, at San Gorgonia Pass, San Felipe, Warner's Hot Springs, and other places.

RUTACEÆ.[1] Lemon Family.

Leaves dotted with translucent dots, simple or compound, without stipules, aromatic. Flowers with 4 or 5 petals; stamens as many or twice as many, inserted outside a disk.

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[1] **Canotia holacantha** *Torr*. A smooth, much branched, leafless small tree or shrub, with alternate branches ending in stout spines and marked with small black scars. Flowers small, in clusters of 3-7, with short stems jointed below the middle; calyx very small, with 5 persistent lobes; petals 5, oblong, white, reflexed, surpassing the sepals and the short stamens. Pod woody, tapering to a long beak formed by the united and persistent styles; filaments and sepals also persistent, cells 5, each splitting into parts. Seeds with membranous wings. In the Providence Mountains and in Arizona; not common.

PTELEA. Hop Tree.

Plate XLIV.

P. crenulata *Greene.* Leaves with 3 sessile leaflets, elliptical to obovate, rounded or acute at apex, crenulate or entire, 1-3 inches long. Flowers small, greenish, in axillary branching clusters, perfect or with stamens and pistils in separate flowers. Fruit 2-celled, 2-seeded, orbicular, encircled by a wing, half an inch in diameter. Small tree or shrub in the Coast Mountains and the foothills of the Sierra Nevada, not common; abundant on certain parts of Mount Diablo and in some parts of Lake County.

ACERACEÆ. Maple Family.

Leaves opposite, palmately lobed or compound. Stipules none. Fruit of 2 parts, each winged. Pistillate and staminate flowers on the same or separate trees.

ACER. Maple.

Flowers in racemes, corymbs, or fascicles; calyx usually 5-lobed; petals as many as lobes or none; stamens about 8, inserted with the petals on a lobed disk. Ovary 2-celled with 2 long diverging styles. Fruit of 2 parts, each containing 1 seed; embryo with large cotyledons.

water courses in the Coast Mountains and Sierra Nevada from the northern to the southern boundaries of the state; extends to Alaska.

A. circinatum *Pursh.* VINE MAPLE, PLATE XLV, FIG. 2. Shrub or small tree with slender vine-like branches which root where they reach the ground. Leaves deeply 7-9-lobed, with pointed, sharply serrate divisions, 3-5 inches broad, with roundish outline, with an open sinus at base. Flowers 10-20, in a loose, umbel-like corymb, small, with red woolly sepals much longer than the greenish white petals; stamens 8 with filaments woolly at base. Fruit red with wings horizontally spreading, altogether about an inch across. Generally shrubby in northern California but becomes a tree farther north.

A. glabrum *Torr.* MOUNTAIN MAPLE. Shrub or small tree. Leaves smooth, 2-4 inches broad, with rounded outline, deeply 3-5-lobed, the lobes sharply and doubly serrate, the sinus shallow, surface often beautifully spotted and margined with a red fungus. Flowers in corymbs; sepals and petals greenish yellow, linear; filaments smooth. Fruit with broad erect wings, altogether an inch or less long. Generally shrubby. Not common; found in the upper parts of the Sierra Nevada, extending north to Alaska and south to the mountains of Arizona.

A. Negundo Californicum *Sargent.* BOX ELDER, CUT-LEAVED MAPLE. PLATE XLVI. Leaves compound, with 3 ovate or oblong, acute leaflets, the terminal largest, 3-5-lobed or coarsely serrate; the lateral serrate, sometimes lobed on the outer margin. Staminate and pistillate flowers on separate trees, without petals; the former in clusters on red thread-like pendent pedicels, anthers green; the latter in pendent racemes. Fruit pubescent, about 1½ inches long, with the wings erect and almost parallel. Tree 20-70 feet high. Grows not far from water, generally along streams in the Coast Mountains from northern California to San Bernardino County. In spring the staminate trees in bloom seem draped with pink filmy veils from the numerous flowers which appear before the leaves.

HIPPOCASTANACEÆ. BUCKEYE FAMILY.

Leaves palmately compound without stipules. Flowers irregular; stamens more numerous than the petals but rarely twice as many.

ÆSCULUS. BUCKEYE.

PLATE XLVII.

Æ. Californica *Nutt.* CALIFORNIA BUCKEYE. Leaves opposite, palmately compound; leaflets oblong-lanceolate, 3-5 inches long, serrate, with pointed apex, narrowing to a short stem at base, smooth. Most of the branchlets terminate in a large cylindrical thyrse of showy white flowers with a tinge of color from the red anthers. Calyx tubular, unevenly 2-3-lobed; petals about half an inch long with distinct claw; stamens generally 6, conspicuously exserted, at first declined; ovary 3-celled, with

STERCULIACEÆ. Sterculia Family.

Leaves alternate. Stamens united into a tube; anthers 2-celled. Fruit a pod. Tree or shrub.

FREMONTODENDRON. Fremontia. 'Slippery Elm.'

Plate XLVIII.

F. Californica *Coville*. False Slippery Elm. Small tree or shrub, with small 3-7-lobed leaves clothed with a rusty, stellate pubescence. Calyx 1-3 inches in diameter, shaped like a wild rose, 5-cleft almost to the base, with bright yellow leathery divisions; bractlets under the calyx, 3-5, small, persistent; corolla wanting; stamens 5, the filaments united to the middle, anthers linear, 2-celled. Pod 4- or 5-celled, splitting open at the top, densely hairy on the inside, persistent for some time after opening. Bark used by the mountaineers as slippery elm. A showy bush when in bloom. Found in both the Coast Mountains and the Sierra Nevada from middle California around Mount Shasta to San Diego.

RHAMNACEÆ. Buckthorn Family.

Shrubs or trees with simple leaves and small flowers; stamens opposite the petals and inserted with them on a disk; ovary with 2-4 cells, a solitary seed in each cell. Fruit a berry or pod.

RHAMNUS. Coffee Berry. Cascara Sagrada.

Plate XLIX.

Leaves alternate, with stipules that soon fall. Calyx tube urn-shaped, the margin 4-5-cleft; petals very small or none. Fruit a berry containing 2-3 stones, each shaped like a grain of coffee.

R. Purshiana *DC.* CASCARA SAGRADA. Small tree or shrub, the bark of which is used to make an important medicine. Leaves deciduous, elliptical, serrulate, pubescent on the lower surface, 2-7 inches long, 1-3 inches wide, petals cleft at apex. Fruit black when ripe, containing 3 seeds. In the Coast Mountains from Mendocino County northward.

R. pirifolia *Greene.* Tree about 20 feet high, with smooth bark and few, spreading branches. Leaves evergreen, oblong to ovate, obtuse at both ends, the apex mucronate, 3 cm. long, 2 cm. wide, entire to glandular-crenate, bright green on the upper surface, yellowish beneath. Berries small, scarlet, solitary in the leaf axils. Santa Cruz Island. Many authorities consider this the same as a shrub which is found from Santa Barbara south along the coast and which has been named *R. insularis* Kellogg.

CEANOTHUS. CALIFORNIA LILAC.

Trees or more frequently shrubs with simple leaves generally small. Flowers blue, white, or lilac, in cymes or panicles; calyx bell-shaped, with colored margins; petals with a small claw, the blade forming a hood; ovary half immersed in the disk, style 3-cleft; fruit a small racemes often forming a thyrse, light blue. Pods smooth, slightly 3-lobed, not crested. Most beautiful when in bloom. Springs up abundantly where the redwood forests have been destroyed by the ax and fire. It is common from Monterey northward.

C. arboreus *Greene.* Leaves 3-nerved, elliptic-ovate, rounded or slightly heart-shaped at base, obtuse at apex, closely serrate, upper surface dark green, lower white with a close fine down, 3 inches long, Flowers pale blue in an ample thyrse. Pods scarcely lobed, much wrinkled, 3-crested. Small tree with twigs at first gray, later reddish. Found only on the islands off the coast of Santa Barbara and on Santa Catalina and Santa Cruz islands.

C. velutinus lævigatus *T. & G.* HONEY DEW. PLATE L. Small tree; sometimes shrubby. Leaves alternate, large, thick, resinous and shining on the upper surface, aromatic, strongly ribbed from the base, serrulate. Flowers white, numerous, in loose clusters on short peduncles. Pods 3-lobed, slightly crested. Mendocino and Humboldt counties, as a tree; the shrubby form (*C. velutinus*) common from Santa Cruz County northward.

C. sorediatus *H. & A.* BLUE BLOSSOMS. PLATE LI. Shrub or small slender tree with spreading branches, rather rigid, somewhat thorny. Leaves alternate, elliptical, glandular on the margins, bright green on the upper surface, much paler on the lower. Flowers deep blue, in very numerous oblong clusters. Pod globose, with crests, and but slightly lobed. In the Coast Mountains from Santa Barbara northward. Most beautiful when in full bloom.

C. hirsutus *Nutt.* Leaves ovate to broadly elliptical, rounded or cordate at base, ½-2 inches long, clothed with appressed long hairs scattered on the upper surface, chiefly along the veins on the lower, 3-nerved and glandular along the margin. Flowers deep blue or purplish, in short-stemmed, loosely flowered clusters about 2 inches long. Pods generally smooth, strongly crested, scarcely lobed. In the Coast Mountains of Central California. More often a shrub than a tree.

C. spinosus *Nutt.* PLATE L. A shrub or small tree 18-20 feet high, the branchlets spiny, reddish brown, widely spreading, angled. Leaves elliptical, 3-nerved, often serrate or dentate on young shoots, rounded at base, obtuse or notched at apex, an inch long, at first woolly, becoming smooth and bright green. Flowers blue, in an open thyrse. Pods smooth, depressed, without crests, and scarcely lobed. In mountain cañons of Santa Barbara, Los Angeles, and Ventura counties, not far from the coast.

C. divaricatus *Nutt.* Tall shrub or small tree with olive-green, rigid, spreading branches, the glaucous twigs often ending in spines. Leaves 3-nerved, serrulate or entire, gray-green, the upper surface darker than the lower. Flowers pale blue, in thyrsiform clusters 2-3 inches long. Pods smooth, slightly crested but not lobed. Conspicuous on account of the pale color of stems and rounded by a corolla-like involucre or in compound cymes; sepals, petals, and stamens 4; calyx attached to the 1-2-celled ovary; fruit a 1-2-seeded berry or drupe.

CORNUS. DOGWOOD TREE.

PLATE LI.

C. Nuttallii *Audubon.* LARGE-FLOWERED DOGWOOD. Small tree 20-70 feet high, with smooth gray bark. Leaves obovate, acute at each end, 3-5 inches long, entire, pubescent. Flowers greenish, in close, button-like heads surrounded by 4-6 obovate, white, petal-like bracts, often tinged with cream or red, 2-4 inches long. Berries bright red, generally few ripening in each head, the rest crowded and abortive. In the Coast Mountains from Monterey to the north where it is most common; in the Sierra Nevada at middle elevations, Yosemite, Kings River; extending to the San Bernardino Mountains in the south and to British Columbia in the north. One of the most beautiful of trees, in the fall gorgeous with the red fruits and brilliantly hued foliage.

The other shrubby species, which very rarely become arborescent, have white flowers in corymbs, reddish stems, and small berries, white or lead-color. *C. sessilis* has flowers in umbels and black fruit.

GARRYACEÆ. FRINGE TREE FAMILY.

Evergreen shrubs with opposite, leathery leaves. Flowers grayish green, in pendent catkins from the axils of the upper leaves, generally clustered; the pistillate and staminate flowers on different plants; staminate flowers with 4-parted calyx and 4 conspicuous stamens on distinct capillary filaments from bell-like involucres which appear as if strung on a thread; pistillate flowers densely clustered, the calyx 2-lobed or wanting; styles 2; ovary 1-celled containing 2 ovules. Fruit a berry about the size of a pea, with a brittle outer covering, pulpy within; contains 1 or 2 seeds; the juice purple.

Garrya elliptica *Dougl.* QUININE BUSH, SILK-TASSEL BUSH, FRINGE TREE. PLATE LII. Leaves white-woolly on the lower surface, wavy-margined. Fruit when ripe red-purple but downy, pleasantly acid with a hint of bitterness. The staminate catkins are from 2-5 inches long and resemble fringe. It blooms in December or January and the fruit is ripe in August or September. From the Santa Lucia Mountains in Monterey County to northern California and Oregon. In the north it is frequently a small tree but generally it is only a shrub.

ERICACEÆ. HEATHER FAMILY.

Trees, shrubs, or herbs with simple leaves without stipules. Stamens as many or twice as many as the parts of the corolla; anthers with the 2 cells each opening by a chink at the top. Ovary generally with as many cells as parts of the corolla. Style simple. Fruit a berry, in the plants that become trees.

ARBUTUS[1]. MADROÑO, MADRONE.

upper surface, paler beneath; older leaves with margins turned back. Flowers white, honey-scented, in large panicles terminating the branchlets; calyx small, 5-lobed; corolla urn-shaped with 5 recurved teeth at top and honey glands visible on the outside at base; stamens 10, the anthers flattened, with a pair of horns on the back near the summit. Fruit when ripe a globular scarlet berry with rough warty surface, edible but dry, about as large as a green pea or larger. These trees are most beautiful at all times, in the spring when full of the large panicles of flowers like lilies of the valley, in the fall when gorgeous with the abundant fruit. In the Coast Mountains from San Luis Obispo County northward; also, chiefly as a shrub, in the Sierra Nevada and San Bernardino Mountains.

ARCTOSTAPHYLOS. MANZANITA.

Generally shrubby except when forming trees with short trunk and close round bushy top, the trunk and branches smooth, dark red, the epidermis in most species peeling off in the summer. Leaves alternate, evergreen, generally upright. Flowers white or pink, in racemes or panicles; calyx small, 5-lobed; corolla urn-shaped, white or rose-color, with 5 recurved teeth at top and honey-glands at base; stamens similar to *Arbutus*. Fruit a berry with powdery pulp when ripe and with stony seeds which are all separate or more generally variously coalescent. The species are not easy to distinguish; almost all may become trees under the right conditions. Those that are most commonly arborescent are given.

A. Manzanita *Parry*. Bushes generally isolated and usually found in valleys or on the lower slopes of mountains. Young shoots and leaves ashy gray, becoming bright green and smooth in age. Flowers crowded in short pendent racemes or panicles; white or rose-color; pedicels smooth; bracts short and pointed. Berry with several nutlets. In valleys of the Coast Mountains.

A. viscida *Parry.* Leaves pale gray-green, smooth. Flowers in panicles, erect in bud but pendent later; generally pink, on slender very viscid pedicels; bracts small, scale-like. Berry of several nutlets. Common in the Coast Mountains and the foothills of the Sierra Nevada. Conspicuous on account of its pale foliage. Generally associated in the Coast Mountains with the cypresses.

A. glauca *Lindl.* Leaves pale green, glaucous, smooth throughout. Flowers in racemes or panicles, pendent in bud and flower. Berries as large as small marbles, viscid, the stone consolidated into a single round nut. From Mount Diablo southward in the Coast Mountains.

OLEACEÆ. ASH FAMILY.

Trees or shrubs with opposite leaves without stipules. Calyx with 4 parts; petals 2, 4, or none; stamens 2; fruit 1-celled and 1-seeded.

FRAXINUS. ASH.

calyx 4-toothed; petals 2, white, as long as the anthers. Fruit an inch long, spatulate, oblong, notched at the top of the wing, pointed at base. Beautiful in spring when in bloom, with its panicles of white flowers. Grows along streams in the inner Coast Mountains and the foothills of the Sierra Nevada.

F. Oregona *Nutt.* OREGON ASH. Becomes a large spreading tree with dark gray bark. Leaflets 5-7, entire, sessile, usually white-downy but becoming smoother with age, oval to oblong, 2-4 inches long. Flowers without petals; the staminate in short dense clusters, with reddish brown anthers, appearing before or with the leaves from large buds; pistillate panicles ample. Fruit 1-1½ inches long without the wing at base, the wing becoming broader towards the top. Throughout the Coast Mountains not far from water; in the foothills of the Sierra Nevada, San Bernardino, and San Jacinto mountains; extends north to Oregon.

F. coriacea *Watson.* Small tree 30 feet or less in height with stout spreading branches. Leaflets generally 5; ovate or oblong, acute at apex, wedge-shaped at base, 2-3 inches long, with distinct stems, 1-2 inches wide; upper surface dark green and smooth, lower paler, serrate on the margin. Fruit an inch or less long, slender, oblong, with the wing rounded or notched at top, as long as the cylindrical seed. Found in the desert region of southeastern California, Cottonwood Creek, growing on mesas and low plains.

BIGNONIACEÆ. TRUMPET-VINE FAMILY.

Trees or shrubs erect or climbing. Leaves opposite or scattered, simple or compound. Flowers large and showy with funnel-form or 2-lipped corolla having 5 lobes;

stamens 2-5, generally some imperfect, without anthers; stigma 2-lipped, at the end of the simple style. Pods open in 2 parts; seeds flat, beautifully winged.

CHILOPSIS. Desert Willow.

PLATE LV.

C. saligna *Don.* Shrub or small tree 10-20 feet high, becoming smooth in age. Branches slender. Leaves linear or linear-lanceolate, 4-6 inches long, the lowest opposite or whorled, upper scattered. Flowers showy, in short racemes at the ends of branchlets; calyx closed in bud, bursting irregularly when the flower opens; corolla white tinged with pink or purple, funnel-form, the lobes crisped on the margins, somewhat 2-lobed and with curving tube, 1-2 inches long; stamens 5, with anthers 4, one without. Pods long, linear, pointed, cylindrical, the 2 valves opening contrary to the partition; seeds narrow, in 2 or more series on each side of the partition, the wings consisting of long silky hair-like fringe. Mohave Desert; Inyo, Riverside, and San Bernardino counties; Arizona, Nevada.

RUBIACEÆ. Madder Family.

Leaves simple, opposite or whorled. Calyx and corolla cream-color, in a dense round head about an inch in diameter; calyx 4-toothed; corolla with long, slender tube and small 4-cleft border; stamens short; style long, conspicuous, with a cap-like stigma. Pods when ripe splitting from the base upwards into 2-4 close 1-seeded parts. Common along streams throughout the state except near the coast and upper elevations in the mountains. Arizona.

CAPRIFOLIACEÆ. HONEYSUCKLE FAMILY.

Leaves opposite, without stipules. Flowers regular or irregular; calyx 5-toothed, attached to the inferior ovary; corolla 4- or 5-cleft; stamens distinct, as many as the corolla lobes and alternating with them. Ovary 2-5-celled. Fruit a berry or dry pod.

SAMBUCUS. ELDER.

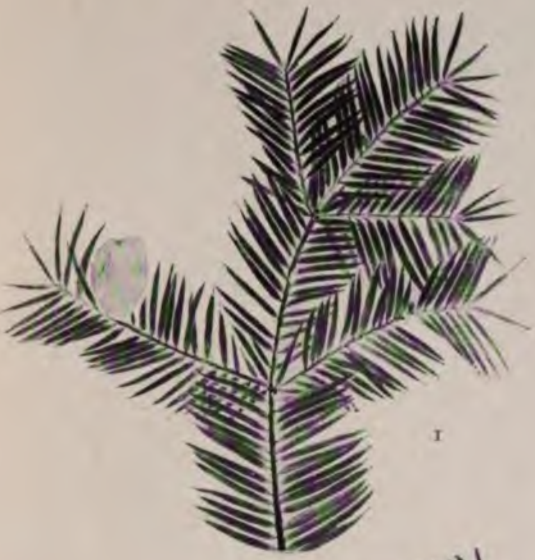
PLATE LVII.

Shrubs or small trees with pinnately compound leaves having 5-11 serrate leaflets. Flowers small, white, in large compound cymes; corolla wheel-shaped or open urn-shaped with 5 lobes; stigmas and cells of the ovary 3-5. Fruit a berry containing 1 seed, really a small drupe.

S. glauca *Nutt.* BLUE-BERRIED ELDER. Small tree or shrub, the trunk slender, the top spreading. Leaflets 3-9, ovate or lanceolate, smooth and leathery. Cymes ample, flat, much branched. Berries blue-black covered with a bloom and sometimes appearing whitish. Common throughout the state and extending to Oregon, Idaho, and Nevada.

S. callicarpa *Greene.* RED-BERRIED ELDER. Generally shrubby but sometimes becomes a small slender tree.

Leaflets obovate or oblong, pointed, 2-7 inches long, smooth on the upper, pubescent on the lower surface. Cymes large, ovate. Berries red, occasionally yellow. Along streams and in ravines in the Coast Mountains of California.



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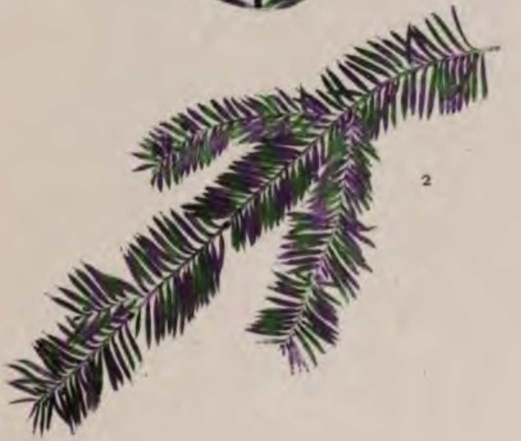

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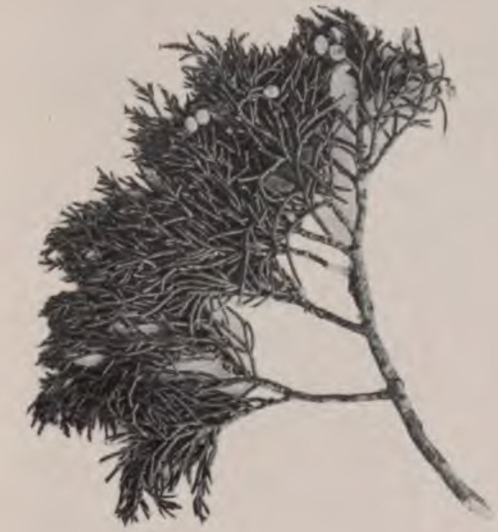
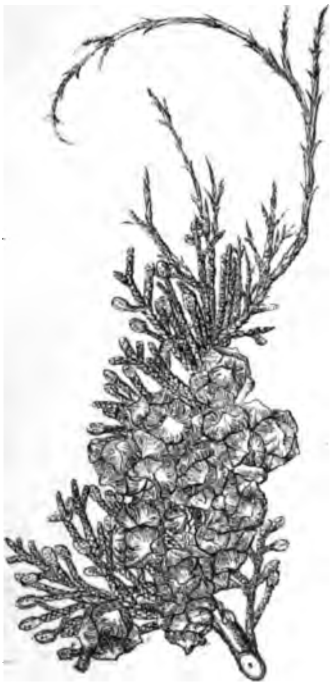
Fig. 1. *Tumion Californicum* Greene.

Fig. 2. *Taxus brevifolia* Nutt.



Juniperus occidentalis Hook.



Cupressus Goveniana Gordon.

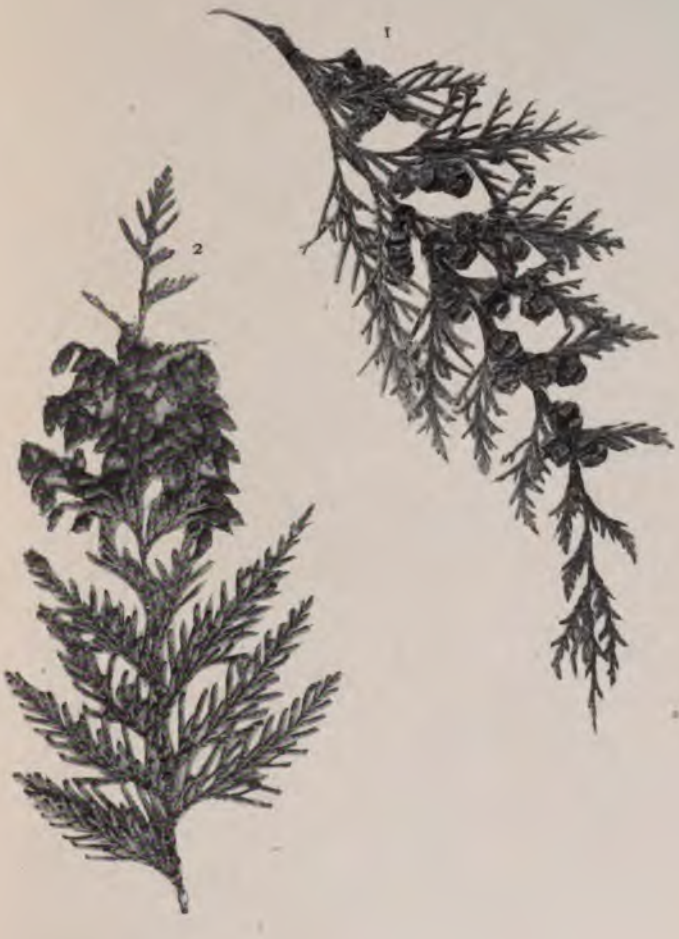
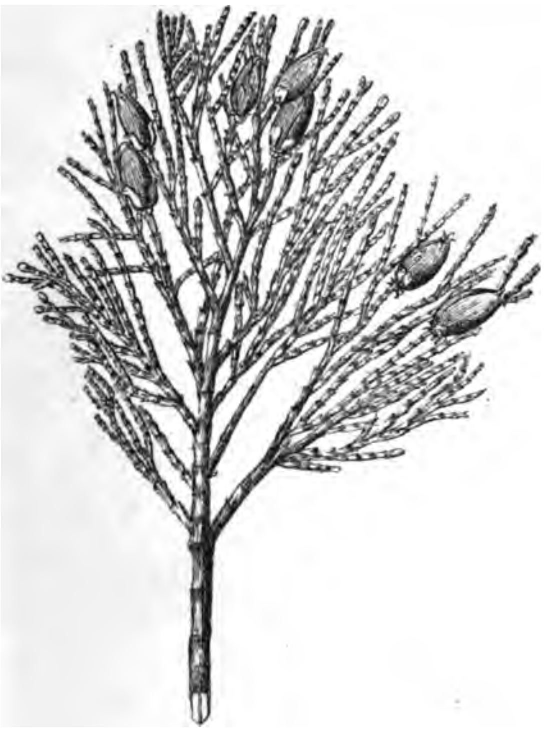
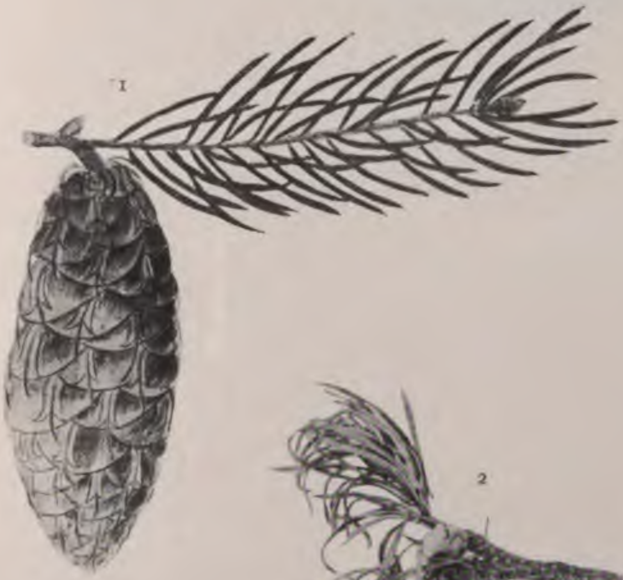


Fig. 1. *Chamæcyparis Lawsoniana* Parlat.
Fig. 2. *Thuya plicata* Don.



Libocedrus decurrens Torr.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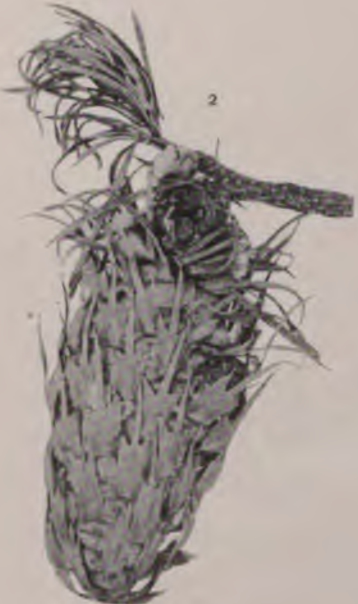
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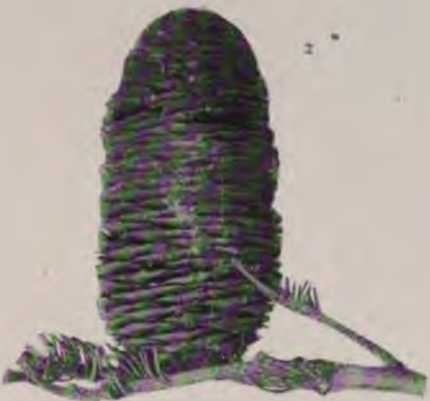
Fig. 1. *Pseudotsuga mucronata* Sudworth.

Fig. 2. *Pseudotsuga macrocarpa* Lemmon.



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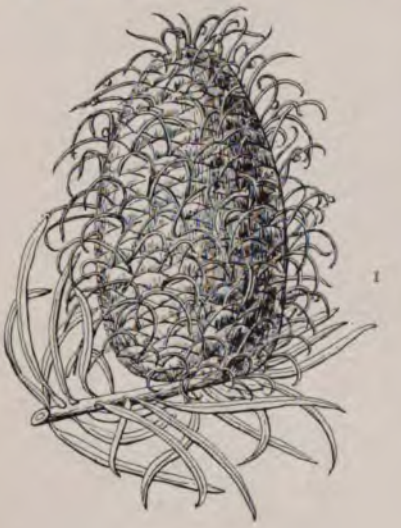

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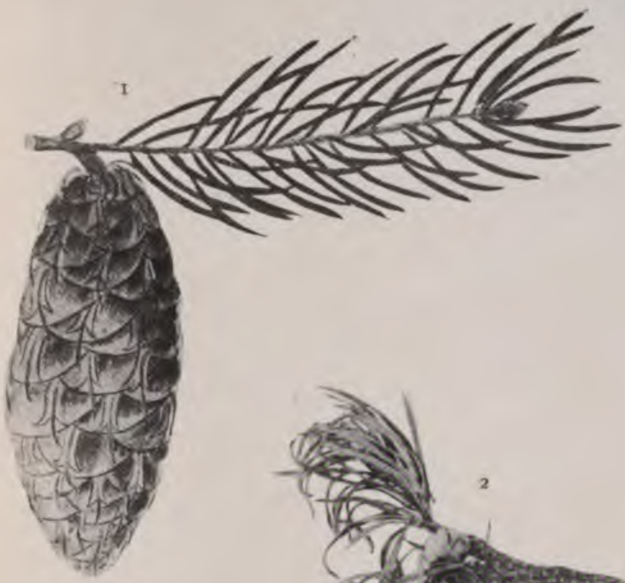
Fig. 1. *Abies venusta* Sargent.
Fig. 2. *Abies magnifica* Murr.



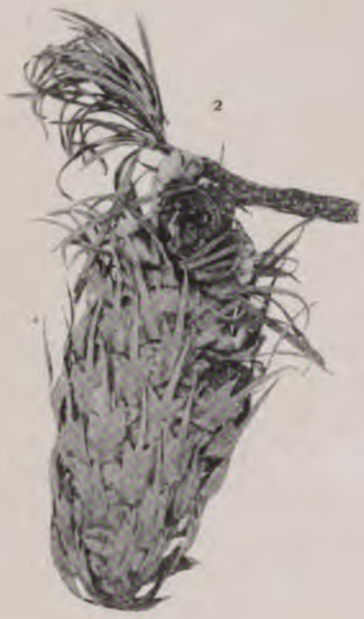
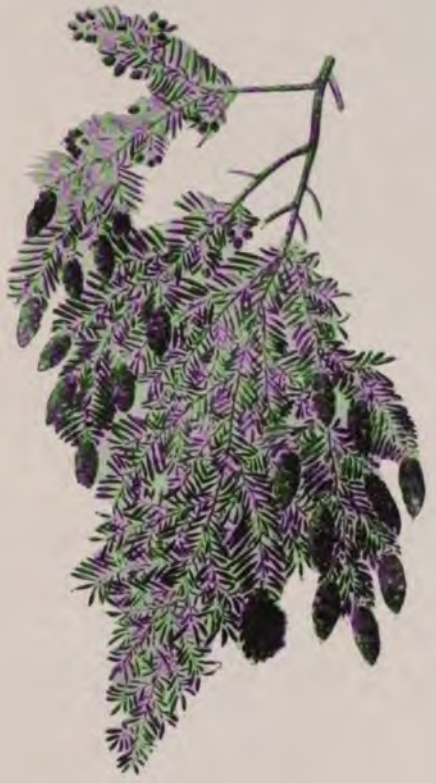
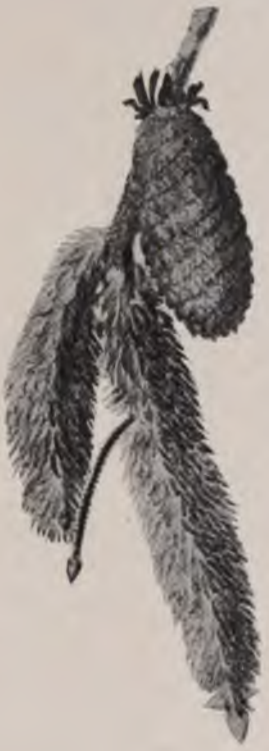


Fig. 1. *Pseudotsuga mucronata* Sudworth.

Fig. 2. *Pseudotsuga macrocarpa* Lemmon.



Tsuga heterophylla Sargent.



Picea Sitchensis CARR.

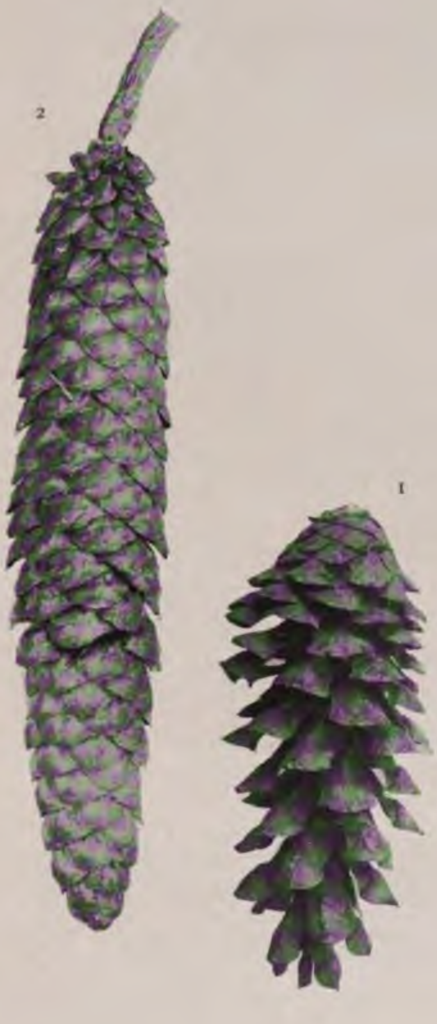


Fig. 1. *Pinus monticola* Dougl.

Fig. 2. *Pinus Lambertiana* Dougl.

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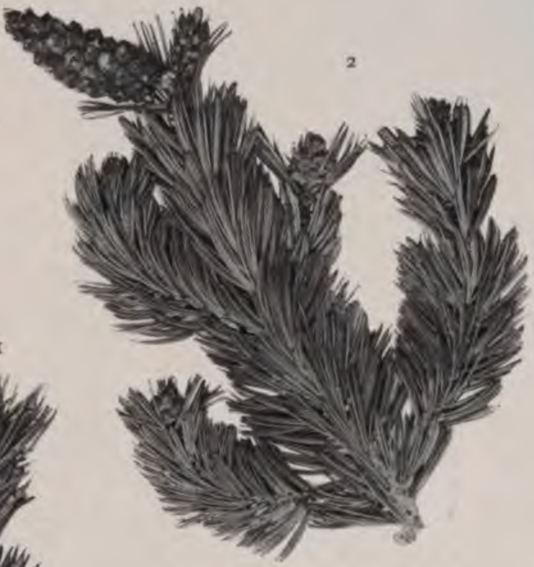

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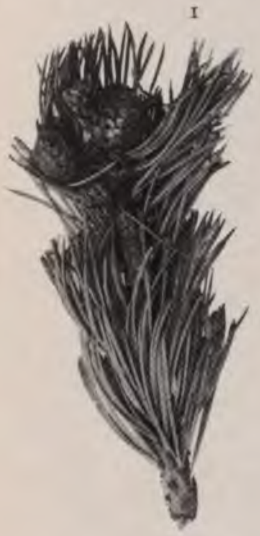
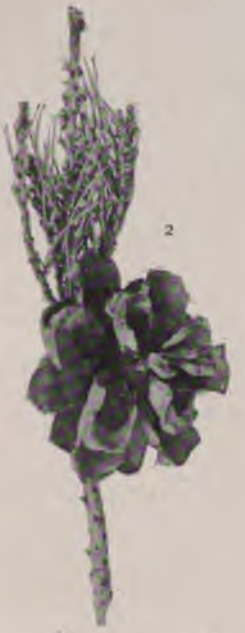


Fig. 1. *Pinus albicaulis* Engelm.

Fig. 2. *Pinus Balfouriana* Jeffrey.



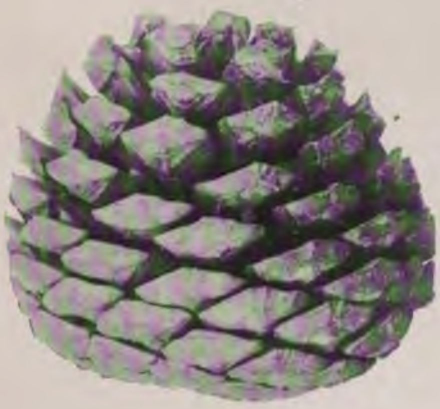
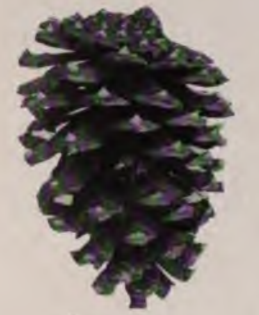


Fig. 1. *Pinus Torreyana* Parry.

Fig. 2. *Pinus monophylla* Torr. & Frem.



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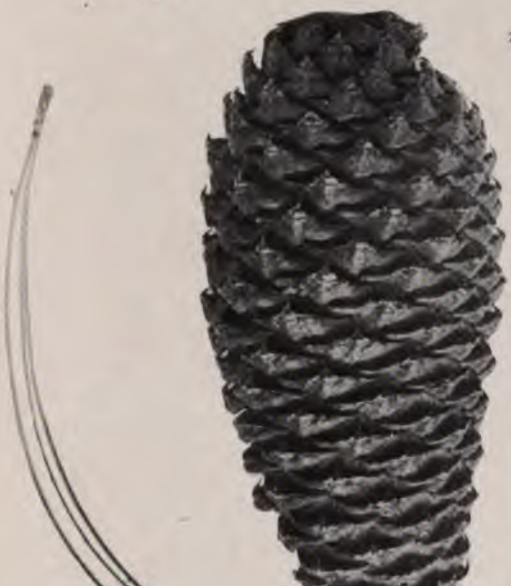

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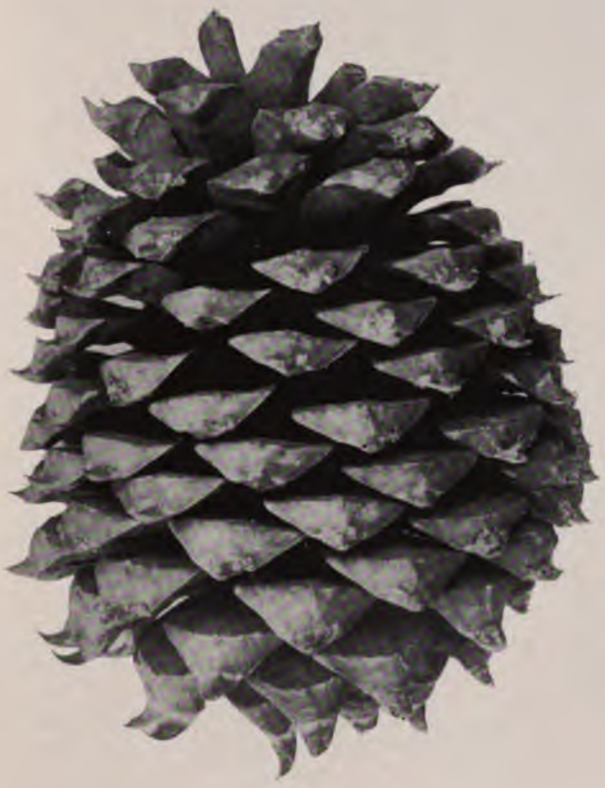
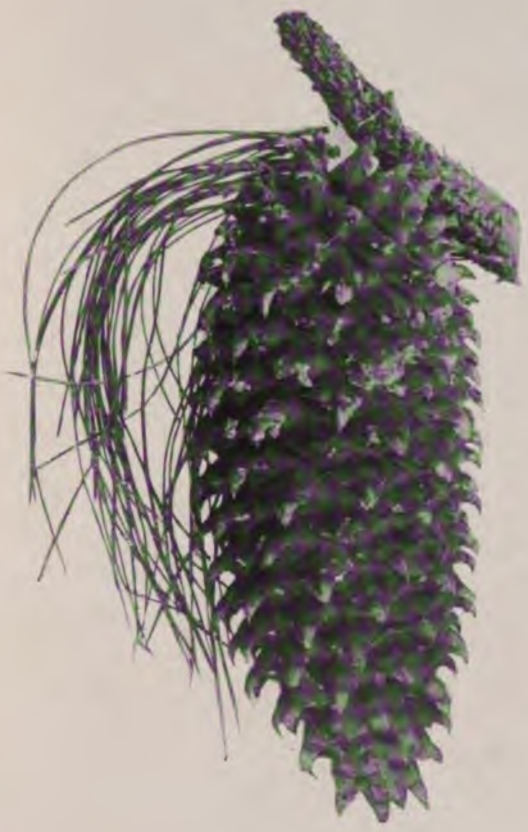
Fig. 1. *Pinus ponderosa* Dougl.

Fig. 2. *Pinus Jeffreyi* Murr.



Pinus Sabiniana Dougl.



Pinus Coulteri Don.

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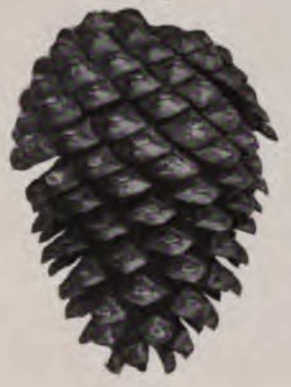

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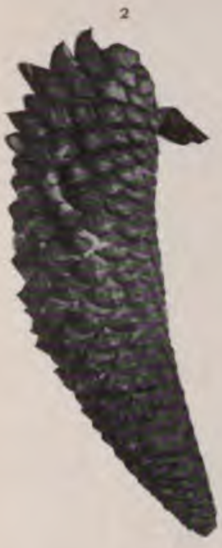

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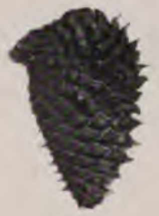

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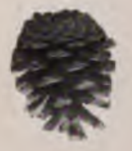

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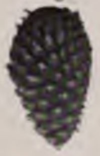
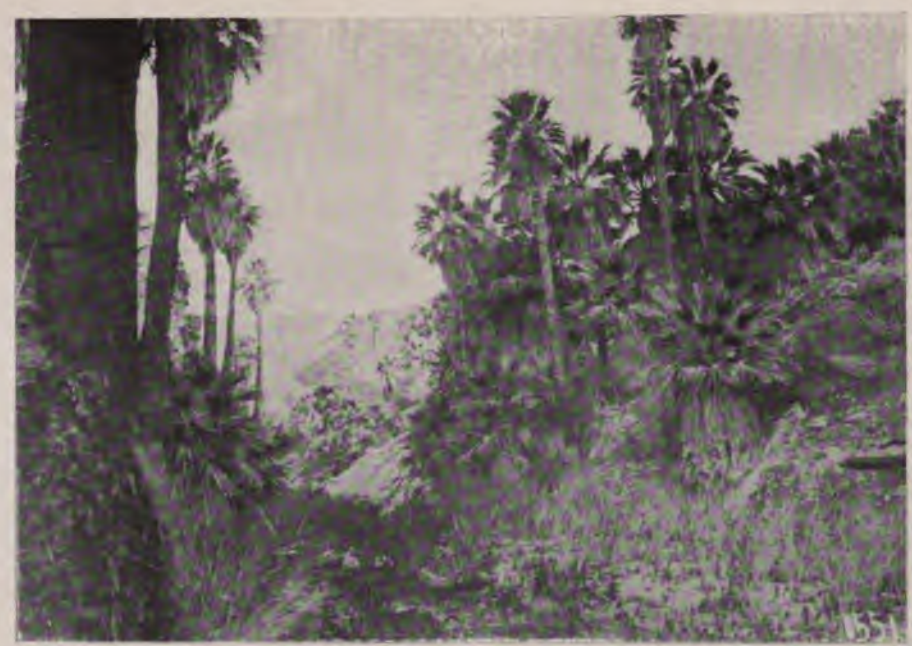
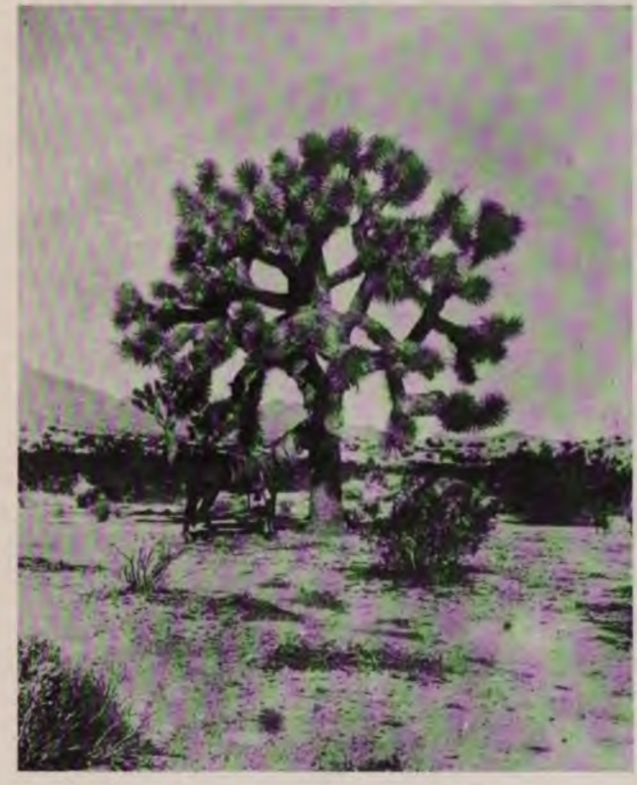


Fig. 1. *Pinus radiata* Don.
Fig. 2. *Pinus attenuata* Lemmon.
Fig. 3. *Pinus contorta* Dougl.
Fig. 4. *Pinus Murrayana* Murr.
Fig. 5. *Pinus muricata* Don.

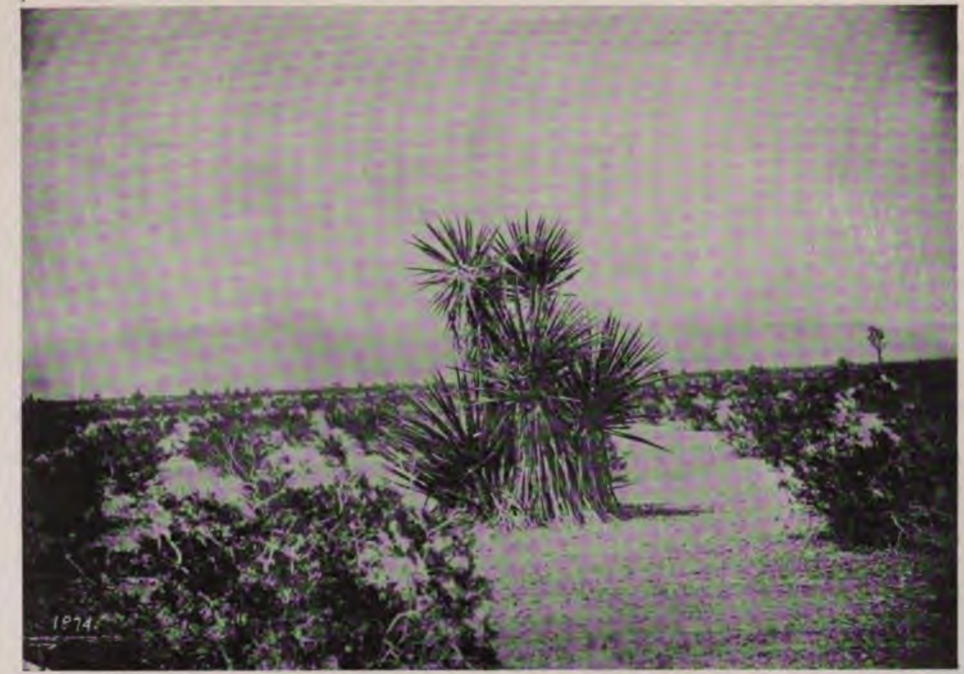


Washingtonia filamentosa O K.



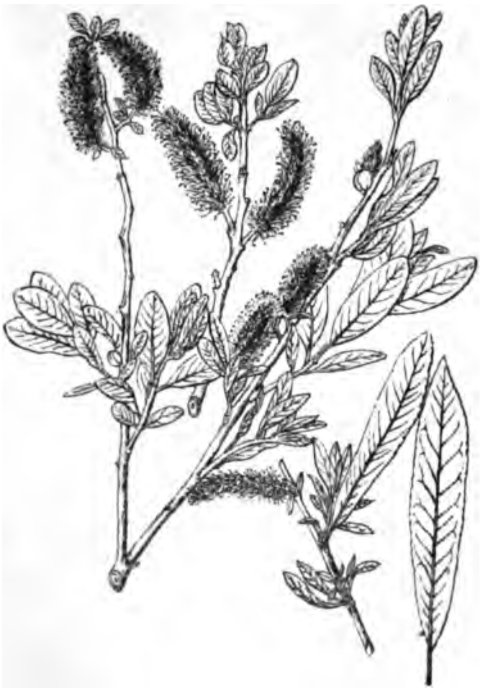
Cleistoyucca arborescens Trelease.

From Coville, United States Department of Agriculture.

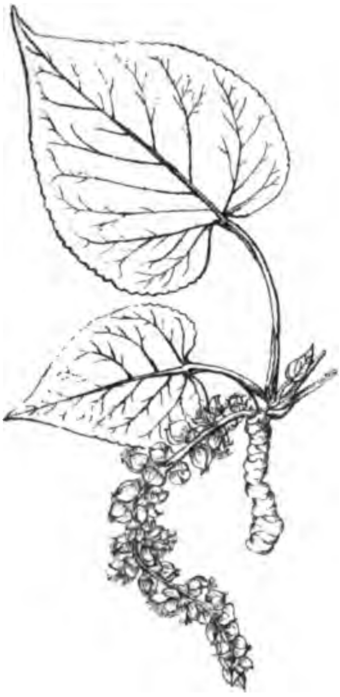


Yucca Mohavensis Sargent.

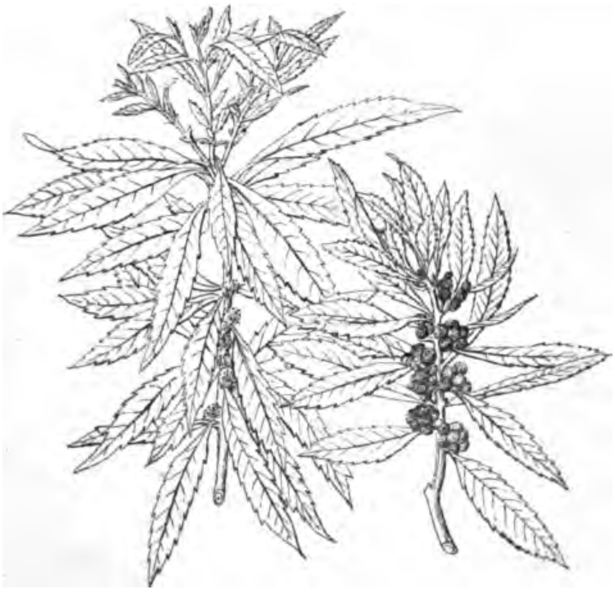
From Merriam, United States Department of Agriculture.



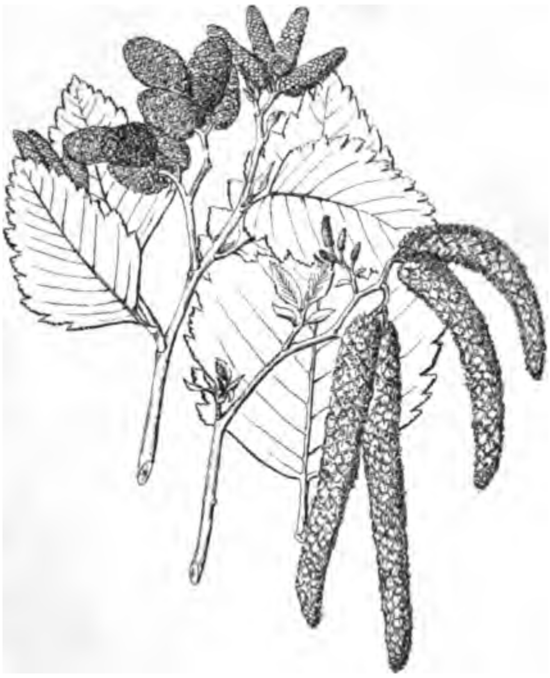
Salix lasiolepis Benth.



Populus trichocarpa Torr. & Gray.



Myrica Californica Cham.



Alnus Oregona Nutt.

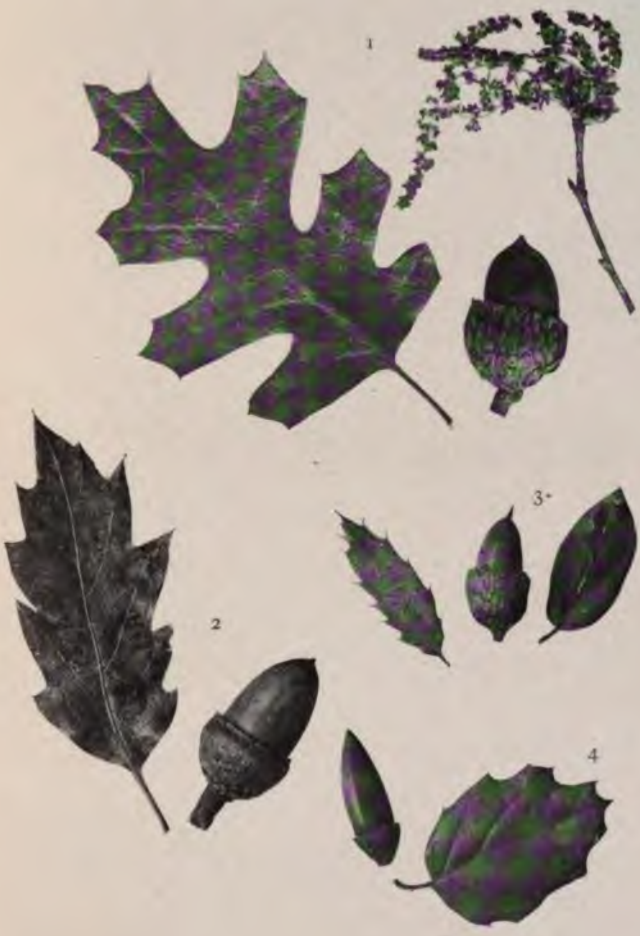


Fig. 1. *Quercus Californica* Cooper.
Fig. 2. *Quercus Morehus* Kellogg.
Fig. 3. *Quercus Wislizeni* A. DC.
Fig. 4. *Quercus agrifolia* Neé.

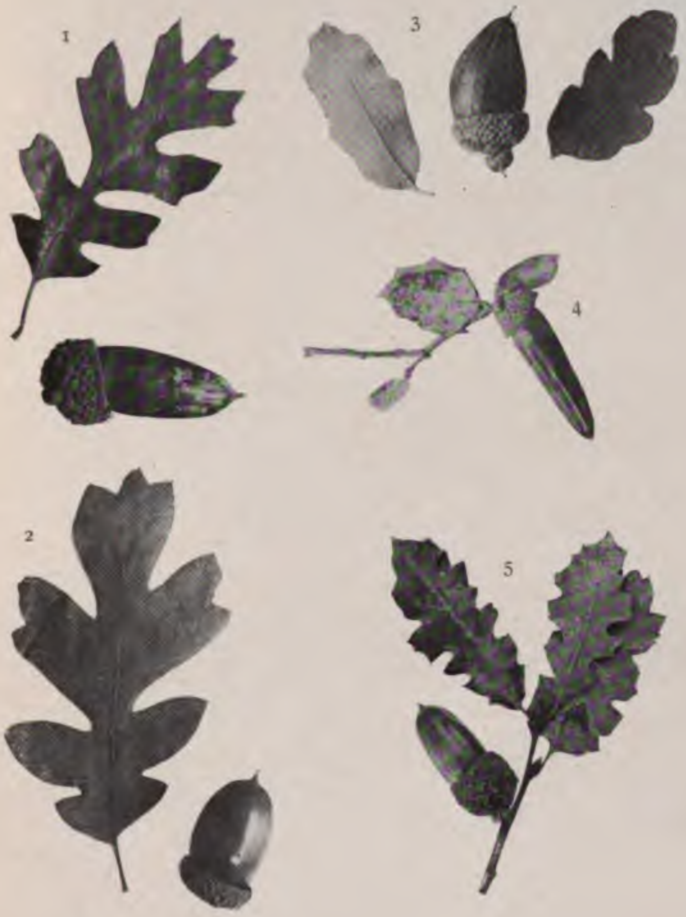
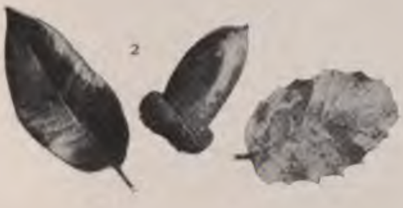
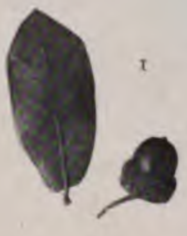


Fig. 1. *Quercus lobata* Neé.
Fig. 2. *Quercus Garryana* Dougl.
Fig. 3. *Quercus Douglasii* H. & A.
Fig. 4. *Quercus Alvordiana* Eastwood.
Fig. 5. *Quercus MacDonaldi* Greene.

2



1



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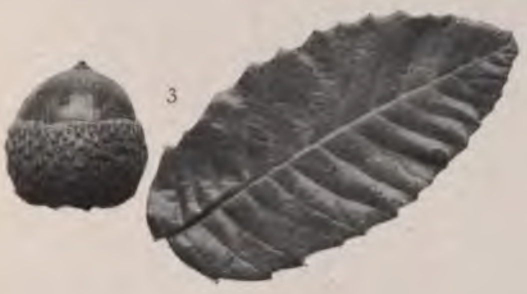

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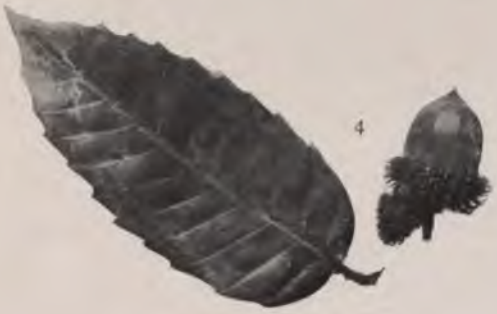
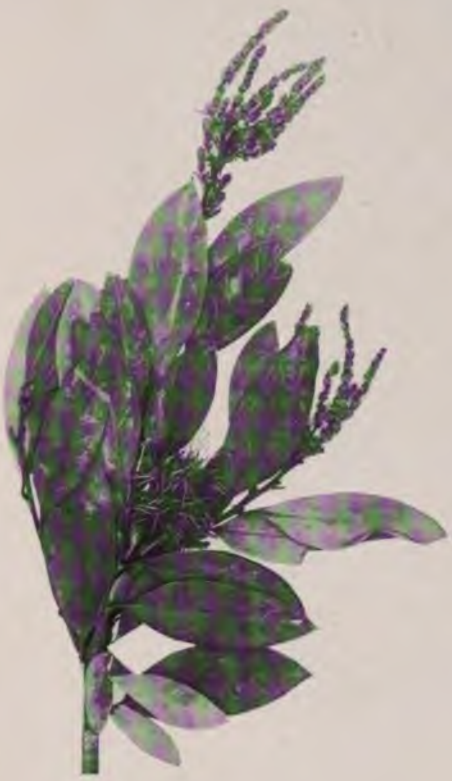
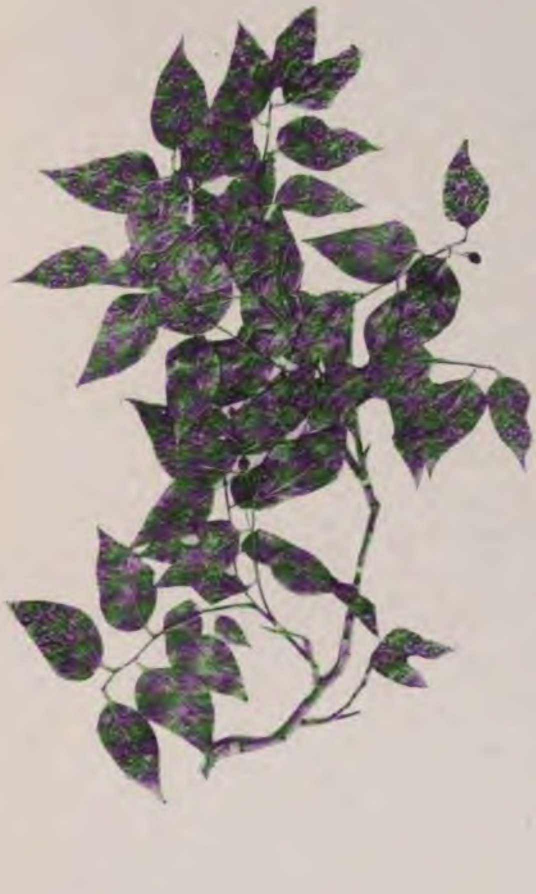


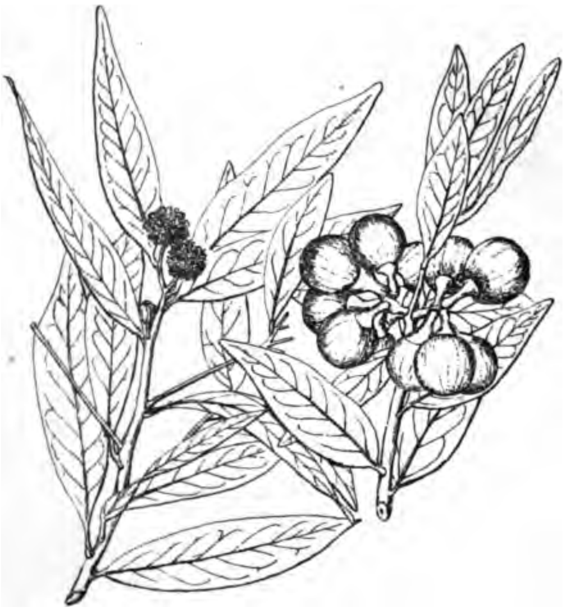
Fig. 1. *Quercus Engelmanni* Greene.
Fig. 2. *Quercus chrysolepis* Liebm.
Fig. 3. *Quercus tomentella* Engelm.
Fig. 4. *Quercus densiflora* Hook. & Arn.



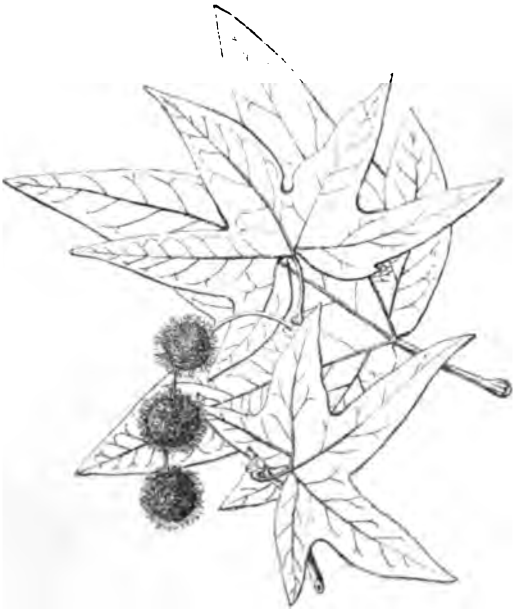
Castanopsis chrysophylla A. DC.



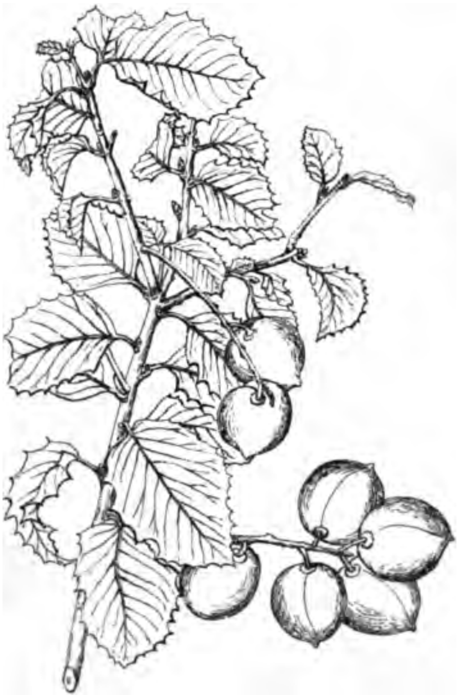
Celtis reticulata Torr.



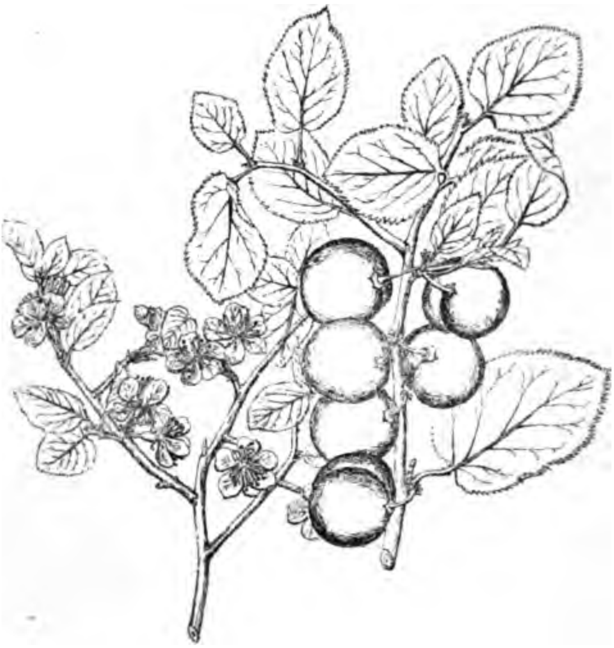
Umbellularia Californica Nutt.



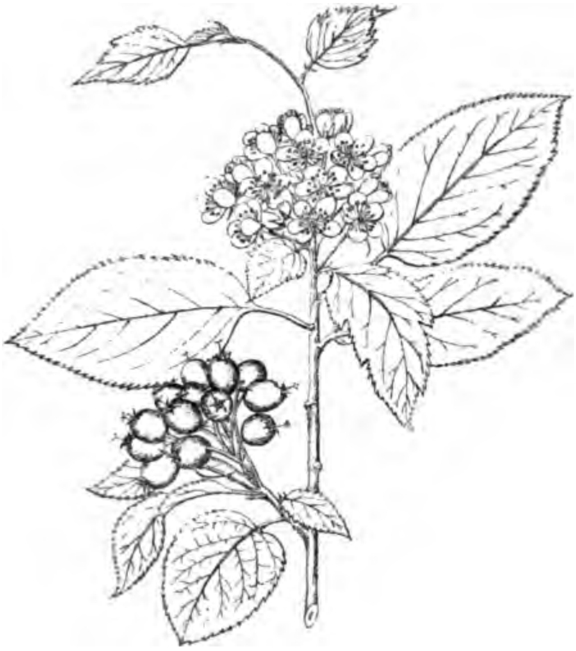
Platanus racemosa Nutt.



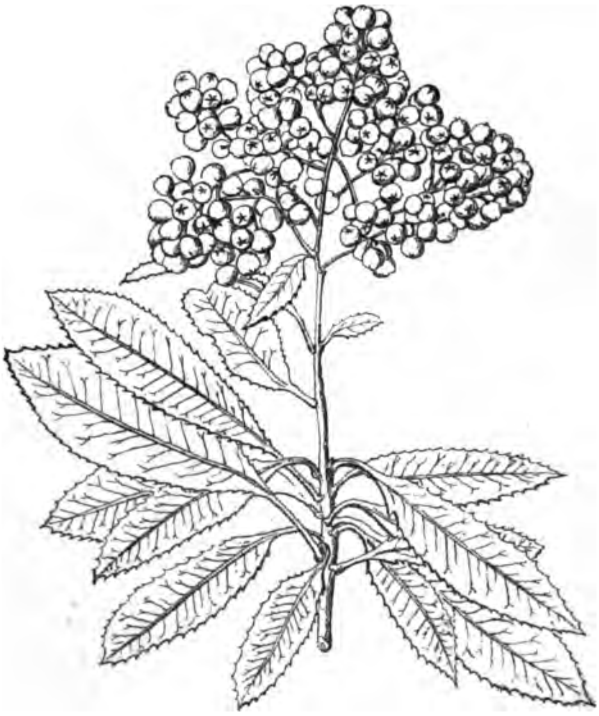
Cerasus ilicifolia **Walp.**



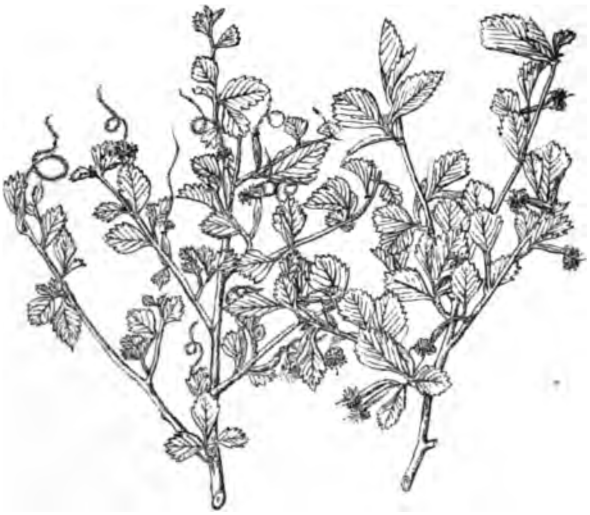
Prunus subcordata Benth.



Malus rivularis Dec.



Heteromeles arbutifolia Roem.



Cercocarpus betulaefolius **Hook.**

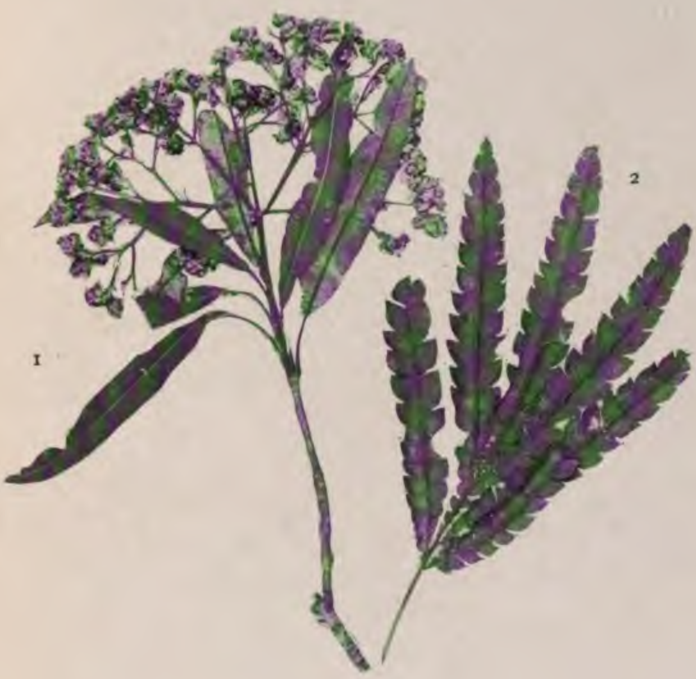
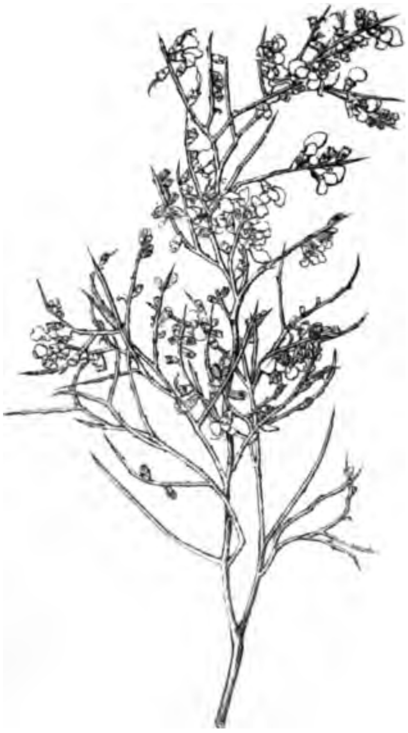


Fig. 1. *Lyonothamnus floribundus* Gray.

Fig. 2. *Lyonothamnus asplenifolius* Greene.



Dalea spinosa Gray.

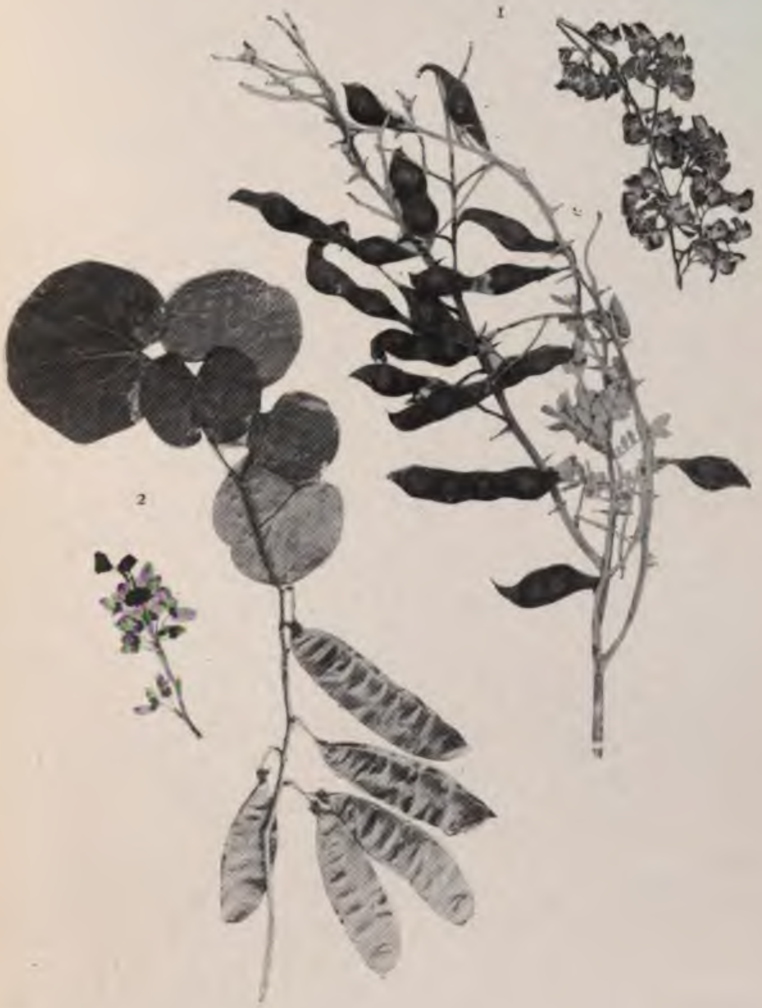
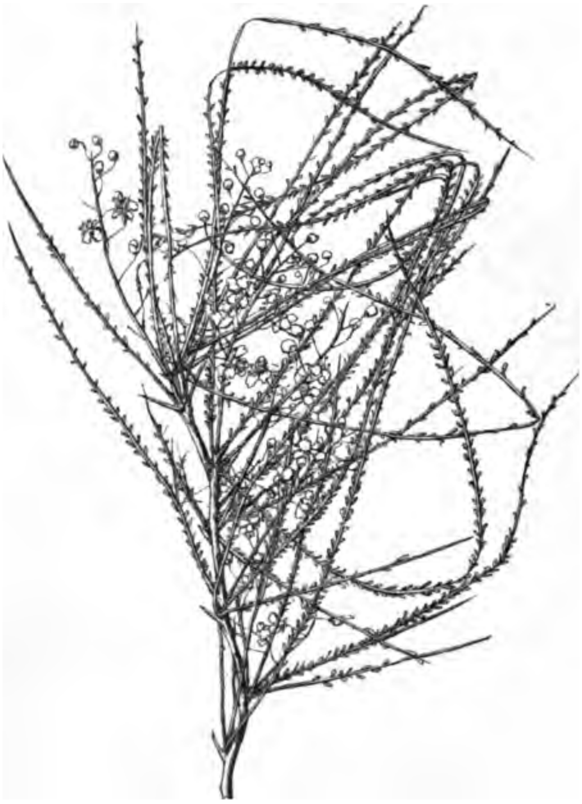


Fig. 1. *Olneya Tesota* Gray.

Fig. 2. *Cercis occidentalis* Torr.



Parksinsonia aculeata L.

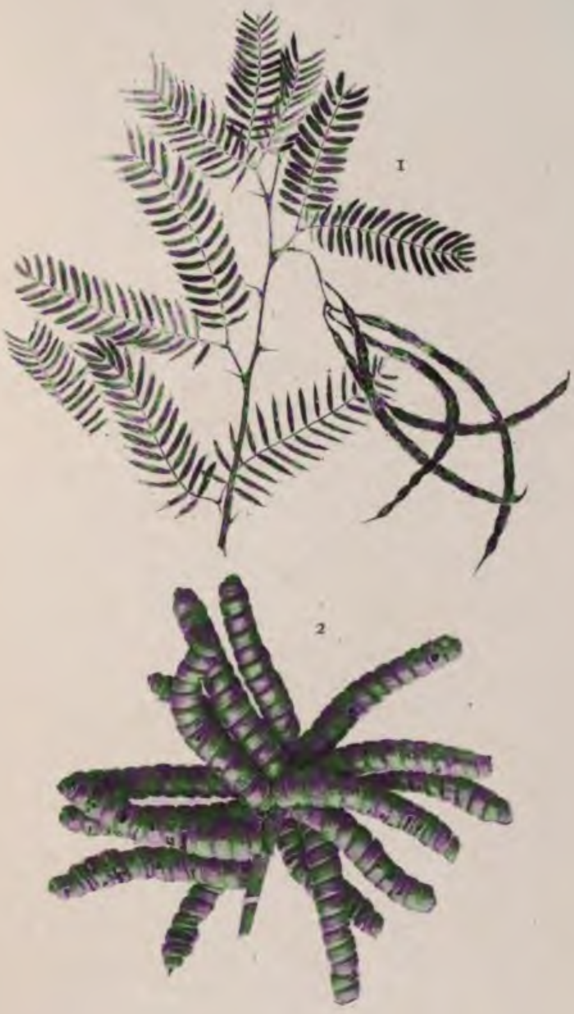
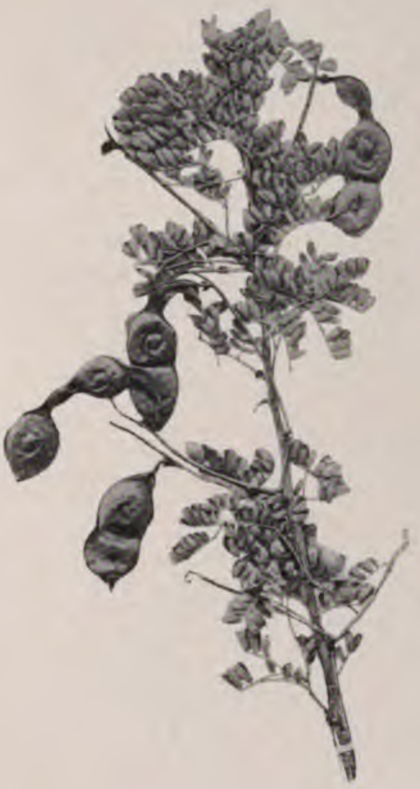
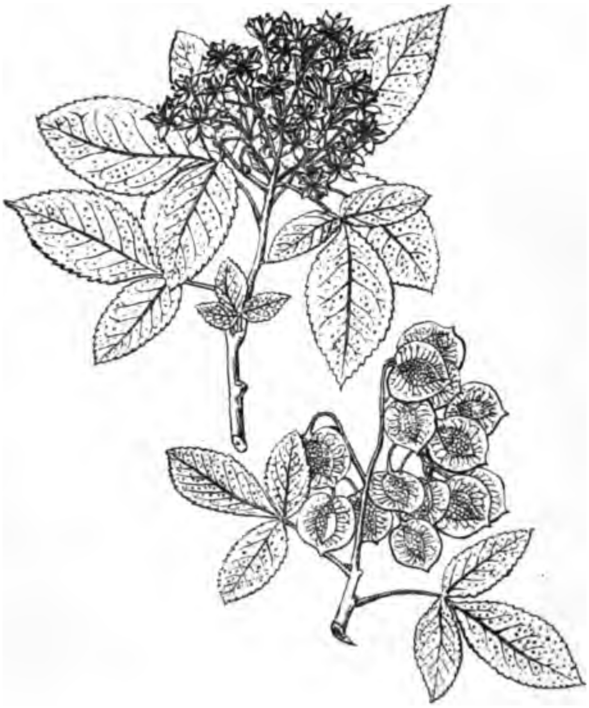


Fig. 1. *Prosopis juliflora* DC.

Fig. 2. *Prosopis pubescens* Benth.



Acacia Greggii Gray.



Ptelea crenulata Greene.

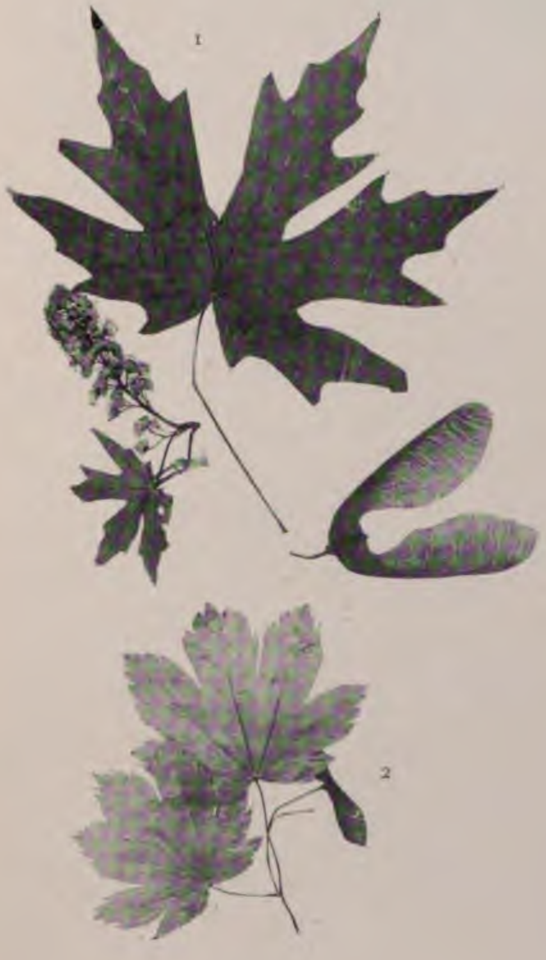
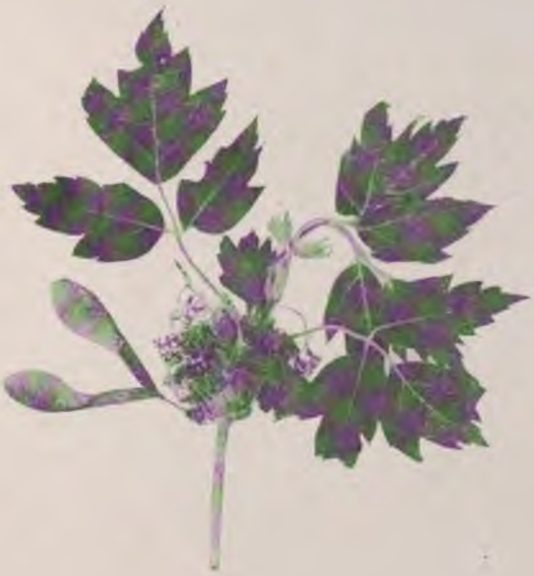
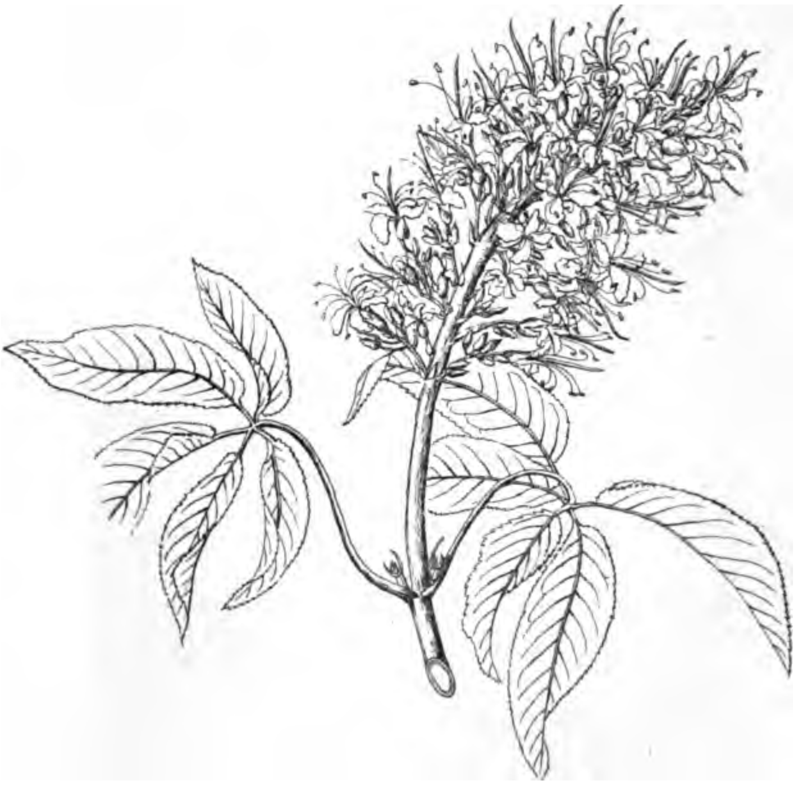


Fig. 1. *Acer macrophyllum* Pursh.

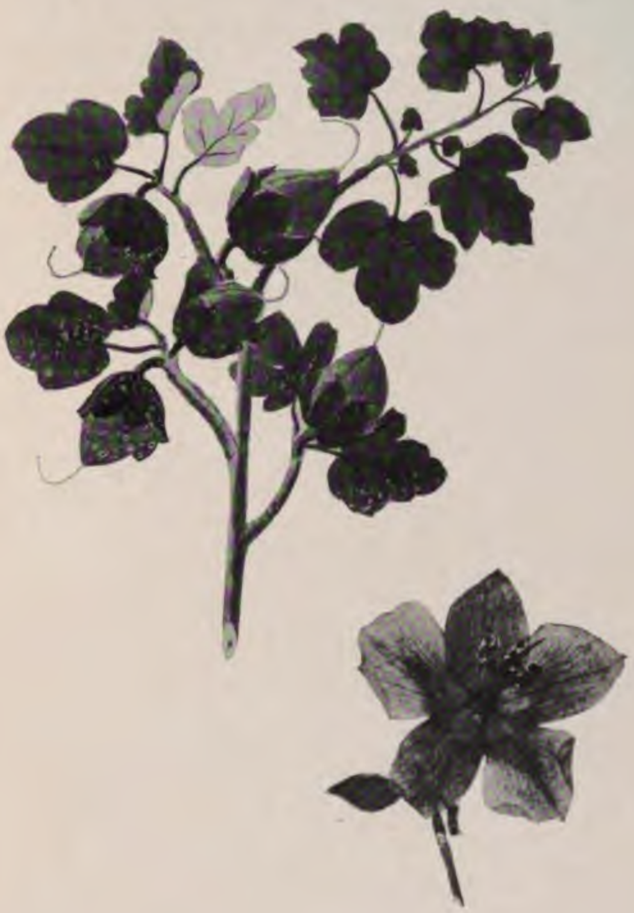
Fig. 2. *Acer circinatum* Pursh.



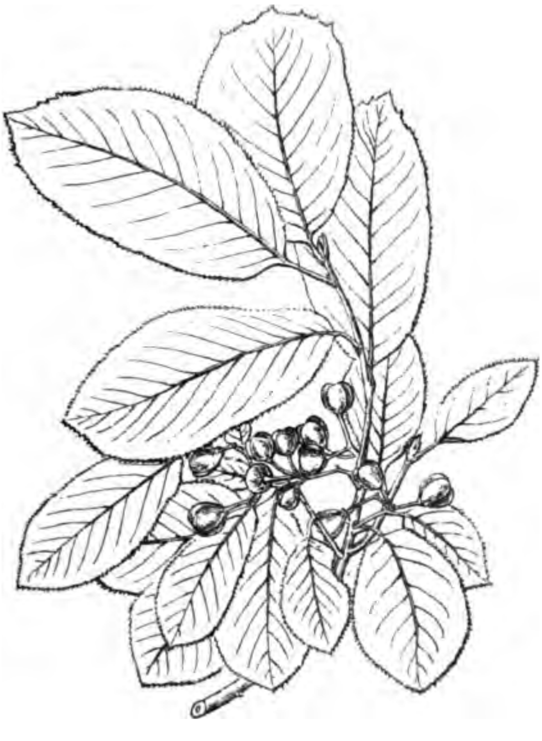
Acer Negundo Californicum Sargent.



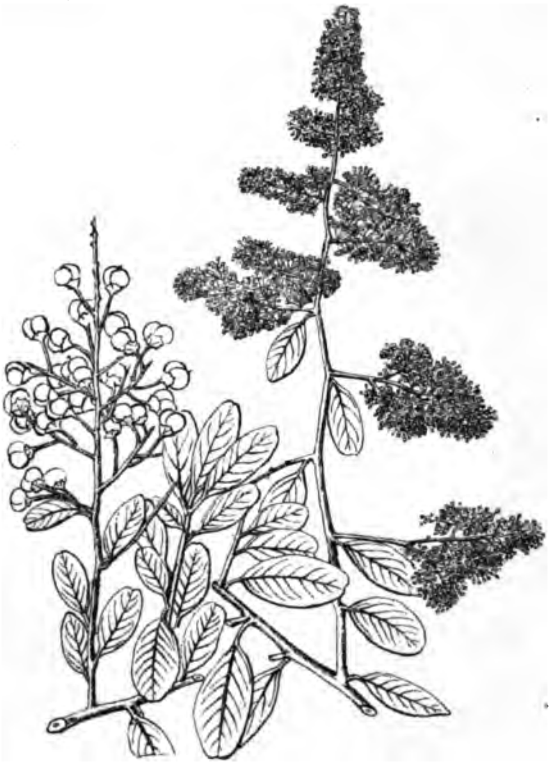
Æsculus Californica Nutt.



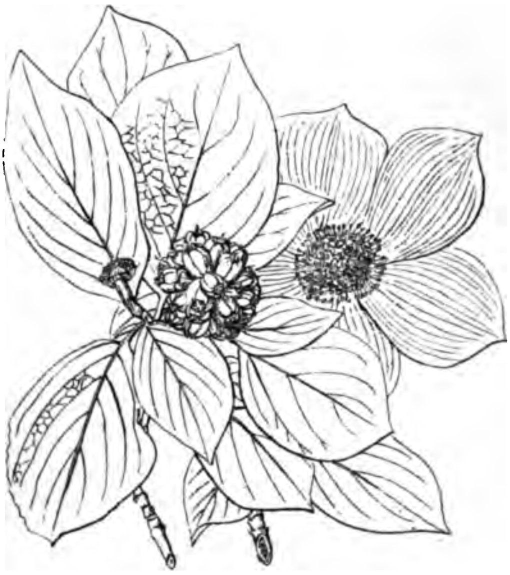
Fremontodendron Californica Coville.



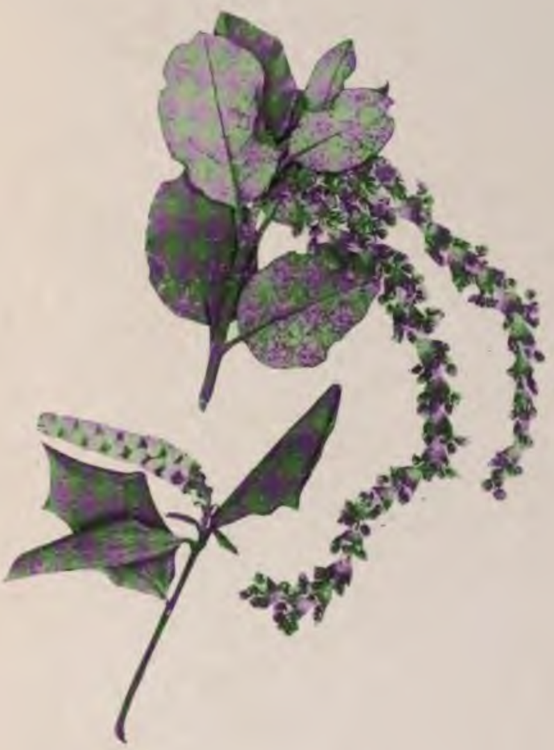
Rhamnus Purshiana DC.



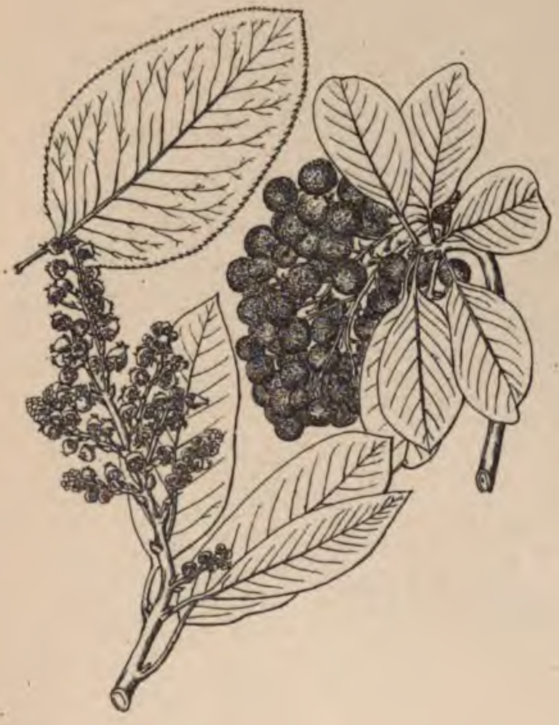
Ceanothus spinosus **Nutt.**



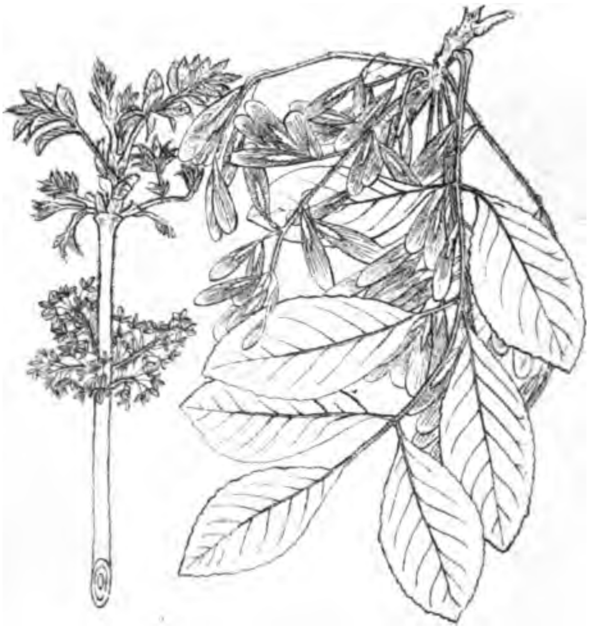
Cornus Nuttallii Aud.



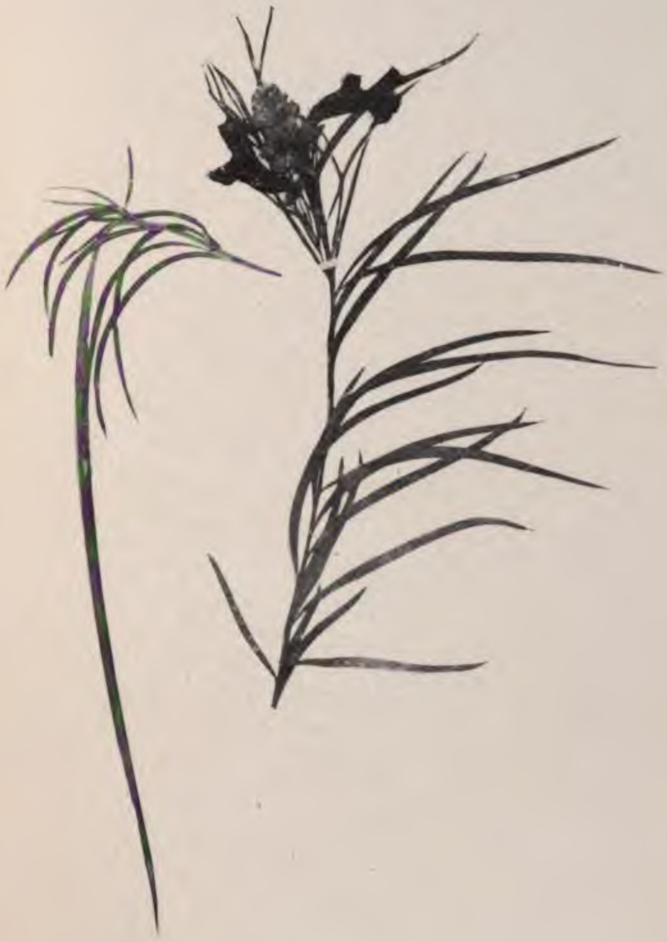
Garrya elliptica Dougl.



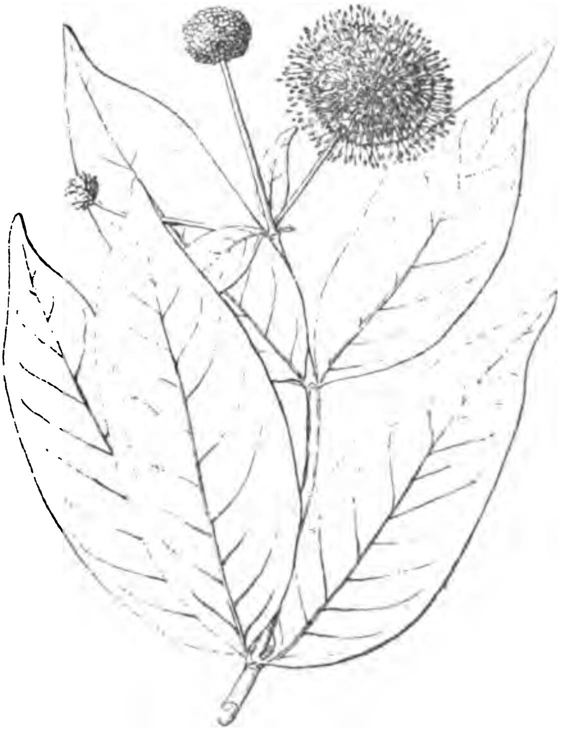
Arbutus Menziesii Pursh.



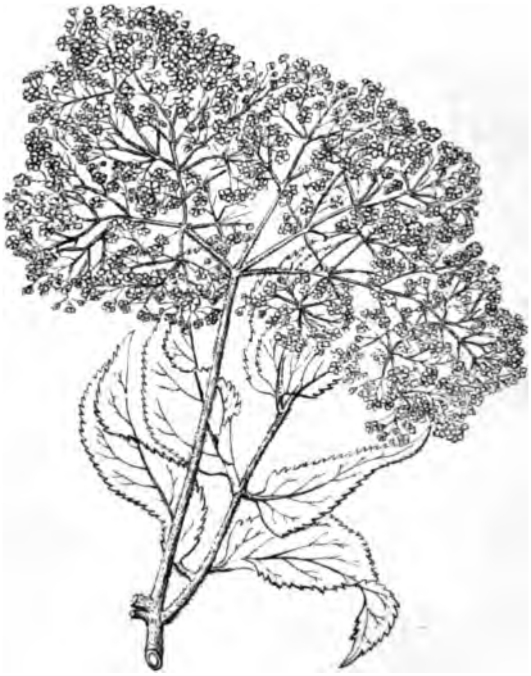
Fraxinus Oregona Nutt.



Chilopsis saligna Don.



Cephalanthus occidentalis L.



Sambucus glauca Nutt.

INDEX AND GLOSSARY.

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acuminate, narrowed to a slender point
acute, forming a sharp angle at the extremity
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Alligator-bark juniper.......... 16
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  rubra.......... 44
  Sitchensis.......... 43
  tenuifolia.......... 44
Alpine white pine.......... 26
Amelanchier alnifolia.......... 56
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anther, the part of the stamen that contains the pollen
Apple.......... 56
Arbol de hierro.......... 61
Arbor-vitæ.......... 19
arborescent, attaining the size and character of a tree
Arbutus Arizonica.......... 74
  Menziesii.......... 74
Arctostaphylos glauca.......... 76
  manzanita.......... 75
  viscida.......... 76
Ash family.......... 76
Aspen.......... 40
axil, the angle formed between the axis and any organ arising from it, especially a leaf
axillary, in the axils of leaves or bracts

BALFOURS PINE.......... 27
Balsam cottonwood.......... 40
Balsam fir.......... 21
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bractlet, a secondary bract
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Chinquapin 51
Choke-cherry 55
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cordate, heart-shaped, especially the base of a leaf or petal
Cordyline 33
Cornaceæ 72
Cornus Nuttallii 73
    sessilis 73
corymb, a flat-topped or open flower
Cupuliferæ 44
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    Macnabiana 18
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    pygmæa 18
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deciduous, falling in season, as leaves in autumn
dentate, with teeth on margin pointing outwards
Desert willow 78
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Digger pine 29
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Dogwood tree 73
Douglas spruce 23
Dracæna 33
Dragon palm 33

ELDER 79
elliptical, with the shape of an ellipse
Endogens 32
entire, with even margin, without toothing or division
epidermis, the outside covering of leaves and stems
Ericaceæ 74
Evergreen willow 38
Exogens 34

FALSE SLIPPERY ELM 69
fascicle, a close cluster or bundle of flowers or leaves
filament, the stem of an anther
Fir 21
Flowering ash 76

Golden-leaf oak 49
Gray-leaf pine 29
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Hawthorn 56
head, a cluster of flowers arranged in a bunch and having no stems
Heather family 74
Hemlock 23
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Hippocastanaceæ 68
Holly-leaved cherry 54
Honey dew 71
Honey mesquite 64
Honeysuckle family 79
Hop tree 66
Horse-bean 62

INCENSE CEDAR 19
inferior, said of the seed vessel when it is beneath the calyx
involucre, a cluster of bracts or small leaves at the base of a head or umbel
Island oak 48, 50
Islay 54
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JOSUA TREE 33
Judas tree 62
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Larix Lyallii 23
  occidentalis 23
Lauraceæ 52
Laurel family 52
Lawsons cypress 18
Lemon family 65
Libocedrus decurrens 20
Liliaceæ 33
Lily family 33
linear, narrow, several times longer than wide
Little sugar pine 26
Live oak 46, 49
lobe, any division of an organ, especially a rounded division
Lodge pole pine 31
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  floribundus 59

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Madroño 74
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Manzanita 75
Maple family 66
Maul oak 49
Mendocino cypress 18
midrib, the central vein of a leaf or other organ
Mimoseæ 64
Monocotyledonous plants 32
Monterey cypress 18
Monterey pine 26, 30
Mountain cypress 18
Mountain mahogany 58
Mountain maple 67
Mountain pine 26
Mountain white oak 47
mucronate, with a sharp terminal point
Myrica Californica 41
  Hartwegi 42
Myricaceæ 41

NARROW-LEAVED COTTONWOOD 40
Nut pine 28, 29

OAK 45
Oak family 44
oblanceolate, shaped like a lance, but with the broad part at top
oblong, much longer than broad, with nearly parallel sides
obovate, with the outline of an egg, the broader part on top
obtuse, blunt or rounded at the end
Oleaceæ 76
Olneya Tesota 61
One-leaved pine 28
orbicular, with a circular outline

Oregon ash 57
Oregon pine 23
oval, in the shape of a broad ellipse
ovary, that part of a pistil that contains the young seeds
ovate, with the outline of an egg, the broader end down
ovule, an immature seed in the ovary

Pacific yew 15
Pale willow 37
Palm family 12
palmate, lobed or veined from the base with the lobes or veins diverging
Palmae 12
Palo verde 62
panicle, a compound flower cluster
Papilionaceae 60
Parkinsonia aculeata 62
  microphylla 62
  Torreyana 62
Parrys nut pine 28
Pasania densiflora 51
Patton spruce 24
Pea family 60
Peach willow 37
pedicel, the stem of a flower in a cluster
peduncle, the main stem of a flower cluster
Pepper-wood 53
perfect, applied to flowers when they contain both pistil and stamens
perianth, the floral envelopes, calyx or corolla or both
petiole, the stem of a leaf
Picea Breweriana 25
  Engelmanni 24
  Sitchensis 24
Pinus insignis 30
  Jeffreyi 29
  Lambertiana 25
  [illegible] 29
  monophylla 28
  monticola 26
  muricata 31
  Murrayana 31
  Parryana 28
  ponderosa 28
  quadrifolia 28
  radiata 30
  Sabiniana 29
  Torreyana 27
  tuberculata 30
pistil, the female organ of a flower
Plane tree 53
Platanaceae 53
Platanus racemosa 53
Plum 55
Poplar 40
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  balsamifera 40
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Pseudotsuga Douglasii 22, 23
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Ptelea crenulata 66
pubescent, clothed with soft hair or down

- Quercus Macdonaldi 48
  - Morehus 45
  - oblongifolia 50
  - reticulata 51
  - tomentella 50
  - Tuomeyi 51
  - undulata 50
  - Wislizeni 46
- Quinine bush 74

- RACEME, a cluster of flowers with equal stems on a lengthened axis, blooming from the base up
- receptacle, the organ on which the parts of a flower are placed, or the flowers themselves when in a head
- Red alder 44
- Red-berried elder 79
- Red-bud 62
- Red cedar 16
- Red fir 22, 23
- Redwood 20
- regular, uniform, when applied to the divisions of the floral organs
- Retama 62
- revolute, with the edges rolled back
- Rhamnaceæ 69
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- Santa Lucia fir 22
- Screw bean 64
- Scrub pine 30
- Senna family 61
- Sequoia gigantea 20
  - sempervirens 20
  - Wellingtonia 20
- serrate, edged with upwardly pointing teeth
- serrulate, diminutive of serrate
- Service berry 56
- Sierra hemlock 24
- Sierra plum 56
- Silk-tassel bush 74
- Silver fir 22
- Slippery elm 69
- Spanish bayonet 33
- Spanish dagger 33
- spatulate, short-oblong, but narrowed to the base
- Spice wood 53
- spike, an elongated flower cluster blooming from the base up, with stems to the flowers very short or wanting
- Spruce 24
- staminodium, a sterile or abortive stamen without an anther
- stellate, star-shaped
- Sterculia family 69
- Sterculiaceæ 69
- sterile, barren, as a flower without a pistil, or a stamen without the anther
- stigma, the top of the pistil where the pollen falls to fertilize the seeds
- stipule, an appendage at the base of a leaf stalk
- Sugar berry 52
- Sugar pine 26
- Sycamore family 53

- TAMARACK 23
- Tamarack pine 31
- Tan bark oak 50
- Taxaceæ 15
- Taxus brevifolia 15
- Thorn apple 56
- Thuya gigantea 19
  - plicata 19
- thyrse, a contracted or ovate panicle or close compound cluster
- Tick tree 70
- Tideland spruce 24
- tomentose, densely clothed with matted wool or short hair

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  Californica 15
Toyon 57
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Tsuga heterophylla 24
    Mertensiana 24
    Pattoniana 24
tubular, with the shape of a hollow cylinder
Tumion Californicum 15

UMBEL, a flower cluster with the stems all arising from the same disk, blooming from the outside
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